

**DRAFT GENERAL MANAGEMENT PLAN
AND
ENVIRONMENTAL IMPACT STATEMENT
Lassen Volcanic National Park
August, 2000**

This document presents a proposed plan and three alternatives for the management and use of Lassen Volcanic National Park over the next 15 years.

Alternative A: No Action, assumes that physical facilities would remain largely unchanged and that staffing and operational funding would remain constant over the planning period.

Alternative B: Resource Preservation & Basic Visitor Service, provides a program for preserving, and where necessary, restoring significant park resources. It includes significant staffing and funding increases for the park's resource management functions, restores key elements of the park's infrastructure, provides for restoration of several specific sites with natural system conflicts, establishes a standards-based management zoning system, and proposes designation of approximately 25,000 acres as part of the National Wilderness System. The plan also includes program increases and visitor facility improvements to provide for quality basic visitor service.

Alternative C: Resource Protection and Enhanced Visitor Experience. This alternative is the proposed General Management Plan for Lassen Volcanic National Park. It includes all the features of Alternative B, and provides enhancement to visitor experience by making more facilities available during winter months, and increasing interpretive services, facilities, and information.

Alternative D: Resource Protection and Expanded Visitor Opportunities, includes all of the features of Alternative C and in addition, provides for expansion of family and group campgrounds at several locations. It also expands winter access at the north entrance by plowing the park road an additional nine miles to the Devastated Area, and keeping one loop of the campground open for winter camping.

Significant adverse environmental impacts would be expected to result from Alternative A as a number of environmental resources are undergoing deterioration under current conditions. All of the action alternatives include programs to arrest the deterioration of resources.

The period of availability for this document will end 60 days after the Environmental Protection Agency has published a notice of its availability in the *Federal Register*. Any comments on the document should be addressed to the Superintendent, Lassen Volcanic National Park, P.O. Box 100, Mineral, California 96063-0100.

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BACKGROUND

Lassen Volcanic National Park, established in 1916, is located in northeastern California in portions of Shasta, Lassen, Plumas, and Tehama counties. The 106,372-acre park is located about fifty miles east of both Red Bluff and Redding and is within a day's drive of two major California metropolitan centers, the Sacramento and San Francisco Bay areas. (See Map 1, Regional Map.) The park accommodates about 400,000 visits each year, providing opportunities for visitors to learn about volcanism and other park phenomena and enjoy various recreation pursuits such as sightseeing, camping, picnicking, and hiking. Over 75 percent of the park is congressionally designated wilderness.

PURPOSE OF THE GENERAL MANAGEMENT PLAN

The National Park Service maintains up-to-date general management plans (GMPs) for each unit of the National Park System. The purpose of the plans is to provide long-term direction for resource preservation and visitor use. The plans are developed in consultation with servicewide program managers, interested parties, and the general public, and are based on an analysis of existing and projected resource conditions, visitor experiences, environmental impacts, and costs.

General management planning constitutes the first phase of a tiered planning and decision making process. It focuses on what resource conditions and visitor experiences should be achieved and maintained over time. The GMP takes a long-term view, which may be many years into the future when dealing with the time frames of natural and cultural processes. The plan considers the park in its full ecological and cultural contexts as a unit of the national park system and as part of a surrounding region.

The general management plan primarily provides a vision of the future. It does not include a great deal of detail on how to achieve that vision. A number of action plans and development designs will be prepared subsequently to implement the GMP and provide more specific guidance on how to achieve the vision. Plans will be completed for various park programs, *e.g.* natural and cultural resource management, interpretation, land protection, and fire management. Site plans and designs will be completed for proposed development. All of these plans will reflect the management direction and the vision articulated in the approved GMP. In most cases, these implementation plans and designs will include additional public review and environmental compliance.

The impacts of all construction projects and various other park programs/projects to be implemented under the approved general management plan (*e.g.*, natural resource management, interpretation, land protection, fire management, etc.), will be considered in subsequent implementing plans in order to comply with Section 106 of the National Historic Preservation Act and the implementing regulations set forth in the Code of Federal Regulations.

The Government Performance and Results Act (GPRA) has instituted a government-wide performance management system with requirements for the preparation of five year strategic plans and annual performance plans and reports. The Park Service approach to compliance with GPRA requires the completion of such plans at the park level as well as at the servicewide level.

The NPS approach to GPRA uses an 8-step process as follows:

1. Review Servicewide Strategic Plan
2. Establish Park Mission
3. Develop Park Mission Goals (Desired Future Conditions)
4. Determine Long-Term Goals (Measurable 5-year goals)

5. Assess Resources
6. Develop Annual Performance Plan
7. Implement Annual Plan
8. Develop Annual Performance Report

The first three steps of the GPRA process will be accomplished in this general management plan.

The California Region of the Forest Service is undertaking a major collaborative natural resource planning effort for the Sierra Nevada region, including the area of the park and the adjacent Lassen National Forest. This effort, referred to as the Sierra Nevada Framework, is intended to facilitate resource decision-making on an ecosystem basis. Cooperative working relationships have been established under the umbrella of this effort and a number of collaborative projects are underway. The Park Service will participate actively in this program over the next several years.

NEED FOR THE GENERAL MANAGEMENT PLAN

Planning Direction & Guidance

Park Mission

Congress established the park in 1916 "for recreation purposes by the public and for the preservation from injury or spoliation of all timber, mineral deposits and natural curiosities or wonders within said park and their retention in their natural condition and...[to] provide against the wanton destruction of the fish and game found within said park and against their capture or destruction..."

The park's mission as stated in the approved Strategic Plan is "to conserve, preserve, and protect Lassen Volcanic National Park and its geological, biological, and cultural resources for the enjoyment, education, and inspiration of present and future generations." The goals associated with this mission are:

Natural, cultural, and wilderness resources and associated values are protected, restored, and maintained in good condition and managed within their broader ecosystem and cultural context.

The park contributes to knowledge about cultural and natural resources and associated values; management decisions about resources and visitors are based on adequate scholarly and scientific information.

Visitors safely enjoy and are satisfied with the availability, accessibility, diversity, and quality of park facilities, services, and recreational opportunities.

Park visitors and the general public understand and appreciate the preservation of parks and their resources for this and future generations.

The park uses current and sustainable management practices, systems, and technologies to accomplish its mission.

The park increases its managerial capabilities through initiatives and support from other agencies, organizations, and individuals.

Legal Mandates and Servicewide Policies

Several laws and policies specify how parks will be managed. They must be adhered to under any alternative considered for park management.

Act of August 25, 1916: Often referred to as the Park Service Organic Act, this law created the National Park Service and assigned to it responsibility for administering the parks and monuments under its jurisdiction "...by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

Park Management Policy: *National Park Service Management Policies*, most recently updated in 1988, provides comprehensive policy guidance for all aspects of National Park management.

Park Planning: *Director's Order # 2*, promulgated in May 1998, provides overall guidance for National Park Service planning, integrating general management planning, strategic planning, and implementation planning. This general management plan conforms to the requirements of this order.

Wilderness: Congress designated 78,982 acres of Lassen Volcanic National Park as wilderness in October, 1972. NPS wilderness management policies are based on provisions of the 1916 NPS Organic Act, the 1964 Wilderness Act, and legislation establishing individual units of the national park system. These policies establish consistent servicewide direction for the preservation, management, and use of wilderness.

National Trails System: The park includes portions of two Congressionally designated trails, the Nobles Emigrant Trail, a component of the California National Historic Trail, and the border-to border Pacific Crest National Scenic Trail. Federal law and policy require the park to coordinate with other jurisdictions in the management of all national trails. The National Park Service is the designated administrator of the California Trail. The Forest Service administers the Pacific Crest Trail.

Cultural Resources: The National Park Service preserves and fosters appreciation of the cultural resources in its custody through appropriate programs of research, treatment, protection, and interpretation. All NPS programs affecting cultural resources are subject to the provisions of the *National Historic Preservation Act*, the *National Environmental Policy Act*, the *American Indian Religious Freedom Act*, the Advisory Council on Historic Preservation's regulations regarding "Protection of Historic Properties", and the Secretary of the Interior's "Standards and Guidelines for Archeology and Historic Preservation."

Air Quality: The National Park Service seeks to perpetuate the best possible air quality in parks because of its critical importance to visitor enjoyment, human health, scenic vistas, and the preservation of natural systems and cultural resources. Vegetation, visibility, water quality, wildlife, historic and prehistoric structures and objects, and most other elements of a park environment are sensitive to air pollution and are referred to as "air quality related values." The Park Service takes an aggressive role in promoting and pursuing measures to safeguard these values from the adverse impacts of air pollution. In cases of doubt as to the impacts of existing or potential air pollution on park resources, the Park Service errs on the side of protecting air quality and related values for future generations.

The National Park Service has a responsibility to protect air quality under both the 1916 Organic Act and the Clean Air Act. The Clean Air Act requires superintendents to take actions consistent with their affirmative responsibilities to protect air quality related values in class I areas. Class I areas include all NPS units designated as national parks with more than 6,000 acres and all national wilderness areas

with more than 5,000 acres that were in existence on August 7, 1977, and any other area redesignated as class I by the governing state or Native American authority. The act also establishes a national goal of preventing any future and remedying any existing man-made visibility impairment in class I areas.

Threatened or Endangered Plants and Animals: Consistent with the purposes of the Endangered Species Act, the National Park Service identifies and promotes the conservation of all federally listed threatened, endangered, or candidate species within park boundaries and their habitats. As necessary, the Park Service controls visitor access to and use of habitats, and it may close such areas to entry for other than official purposes. Active management programs are conducted as necessary to perpetuate the natural distribution and abundance of threatened or endangered species and the ecosystems on which they depend. The U.S. Fish and Wildlife Service and the National Marine Fisheries Service are the lead agencies in matters pertaining to federally listed threatened and endangered species. The Park Service cooperates with those agencies in activities such as the delineation of critical habitat and recovery zones on park lands and participates on recovery teams.

The National Park Service also identifies all state and locally listed threatened, endangered, rare, or candidate species that are native to and present in the parks, and their habitats. These species and their habitats needs are considered in NPS planning activities. Based on an analysis of the status of state and locally listed species throughout their native ranges and throughout the National Park System, the NPS may choose to control access to habitats essential for maintaining viable populations. It may also conduct active management programs similar to activities conducted to perpetuate the natural distribution and abundance of federally listed species. The NPS cooperates with the agencies responsible for state or locally listed species.

Planning Opportunities and Issues

Decision Points

Decision points are the questions the plan needs to answer in order to provide management direction. Numerous issues were raised by the public, other agencies, and staff during the scoping period. The planning team sorted through all of these issues to determine which ones could be appropriately addressed in a GMP. The team concluded that three basic questions needed to be addressed in the general management plan. These are:

What projects and programs must be undertaken to ensure that natural, cultural, and wilderness resources are preserved in perpetuity?

To what degree should the park provide access, facilities, and programs in all seasons?

To what extent should the park provide public facilities and programs beyond those essential for minimum public access and enjoyment of the park's primary attractions?

Alternative plans were subsequently developed by the planning team to address these decision points.

Major Resources and Values at Stake

Public scoping comments also suggested the broad range of major resources and values *potentially* at stake in the development of a general management plan. As alternatives were considered and formulated, it became apparent that not all of the listed resources and values would, in fact, be affected by the alternatives. Those resources and values *actually expected* to be affected are described and evaluated as environmental topics in the **Affected Environment** and **Environmental Consequences** sections of this document.

AN OVERVIEW OF LASSEN VOLCANIC NATIONAL PARK

The purpose of this section is to provide the plan reviewer with a basic orientation on the park's sites and facilities to facilitate review of the alternative plans. Map 1 is a regional map.

Lassen Volcanic National Park is a mountainous, mostly wilderness park. As shown in Map 2, Physical Features, there are six basic developed areas: the main park road, Butte Lake, Juniper Lake, Manzanita Lake, Warner Valley, and Headquarters. These areas are discussed in turn below.

Main Park Road: The main park road, running from the southwest corner of the park to the northwest corner around three sides of Lassen Peak, is a two-lane paved road which was aligned and constructed subsequent to park designation for the express purpose of providing visitor access to a range of phenomena associated with the eruption of Lassen Peak. The great majority of first-time visitors to Lassen drive the length of this road.

The first park facility encountered by the visitor entering at the southwest boundary is the staging area for the Brokeoff Mountain Trail. This area, located approximately half a mile north of the boundary, is currently a minimal unpaved parking lot. A trail to the west climbs to the top of Brokeoff Mountain.

Another half-mile north on the main road takes the visitor to the entrance station, where entrance fees are collected. A short distance north of the entrance station the visitor encounters a very large paved parking lot just east of the road, and a structure known as the Chalet because of its A-Frame design. The two-story Chalet provides restrooms on the lower floor and concession services, including a gift shop and food service, on the upper floor. There is not sufficient space in the Chalet for Park Service information services or interpretive materials, so in summer months the Park Service staffs a small information kiosk adjacent to the Chalet where visitor questions are answered and park materials are provided as needed. This area becomes highly congested during peak summer periods.

The Southwest Walk-In campground is also located in this area. Campers park in the large lot.

The first major interpretive stop on the road, the Sulphur Works, is located a short distance north of the Chalet. Here park visitors can see and smell volcanic phenomena on either side of the park road. A short boardwalk provides access to some of the features.

A few more miles of twists and turns on the park road take the visitor to the staging area for the Bumpass Hell Trail. The parking lot is somewhat roughly laid out and subject to severe crowding in summer months. This heavily used trail provides an opportunity to hike in to see a range of volcanic features.

A short distance north is the staging area for the Lassen Peak Trail. This trail, though a long and steep climb to the top, is extremely popular with visitors beginning in the spring even before the snow has melted. A large parking lot is provided.

A few more miles on the main road takes the visitor to the Kings Creek picnic area, and yet a few more miles takes the visitor to Summit Lake. At Summit Lake there are two fairly large campgrounds.

A couple of miles west of Summit lake, the visitor arrives at the interpretive site for the Devastated Area, the area that was most dramatically affected by the eruption. This area offers interpretive displays on the eruption, a large parking lot, restrooms, and a short interpretive trail

Several miles further northwest is the Lost Creek Group campground. The seven sites at this campground will serve up to 25 visitors each. These sites must be reserved in advance.

Crags campground is located just beyond Lost Creek.

Butte Lake: The Butte Lake area is located in the extreme northeastern corner of the park, and is accessible from a spur extending south from State Highway 44. Facilities provided include a campground, a ranger station, and a popular trail around and to the summit of Cinder Cone. Map 3 shows the layout of the area.

Juniper Lake: The Juniper Lake area is located in the extreme southeast corner of the park. It is accessible by an unpaved and somewhat rough road extending north from the town of Chester. Facilities include a family campground, a group campground, ranger station, and a staging area for trails leading to popular wilderness destinations. Map 4, Juniper Lake Unit, displays the layout.

Manzanita Lake: The Manzanita Lake area is the first developed area encountered by the visitor entering the park via the northwest entrance. Manzanita Lake is the largest developed area in the park with a large campground, picnic area, museum, and general store. The Park Service also has administrative and maintenance facilities in this area. Map 5, Manzanita Lake Unit, shows the overall layout of this area.

Warner Valley: This area is located in the south central part of the park. See Map 6, Warner Valley Unit. It is accessible by a fairly rough, mostly unpaved road extending northwest from the town of Chester. This area provides a wide range of visitor facilities and attractions including a small campground, a trailhead providing access to volcanic phenomena and wilderness destinations, and the Drakesbad Guest Ranch, a concession which offers rustic lodging, horseback riding, pool swimming, and dining. Many of the structures in this area are historic.

Headquarters: Park headquarters is located outside the park on a separate parcel straddling State Highway 36 in the town of Mineral. The main park administrative offices and maintenance facilities are located here, along with a number of units of employee housing. This area includes a number of rustic structures constructed in the CCC era. See Map 7, Headquarters Unit, for the layout of the area.

Map 1. Regional Map

Map 2. Physical Features

Map 3. Butte Lake Unit

Map 4. Juniper Lake Unit

Map 5. Manzanita Lake Unit

Map 6. Warner Valley Unit

Map 7. Headquarters Unit

ALTERNATIVE PLANS

Alternative long-range plans were developed by the planning team to reflect different preferences expressed in the scoping process by public, agency, and park staff commenters. For reasons outlined below, the differences among the plans are not extensive, i.e. all of the plans have many of the same basic features.

It is important to understand that the range of use and development options for national parks is far narrower than for private land, where the character and intensity of use can vary dramatically in response to changing market forces and public preferences. Multiple-use public lands such as National Forests also have a broader array of development and use options, since they are managed under a broad charter to meet a wide range of public objectives ranging from commodity supply (timber, forage, minerals, etc.) to recreation opportunities to resource preservation. In contrast, use and development of national parks such as Lassen is closely constrained by national laws and policies.

Most of the differences among the alternative plans relate to visitor service and facilities. There are two reasons for this. First, these were the subjects most often cited in scoping comments. Second, and more importantly, this is the part of the mission in which NPS has the most flexibility and range of discretion. Within the limits of resource capability, there can be variation in both what visitor services and experiences are provided and to what extent they are provided. For example, some commenters in the scoping sessions felt that the park should provide additional facilities and services, while others felt that no changes should be made in the park. These differences of opinion are reflected in the alternative plans.

There is considerably less flexibility in the resources preservation part of the mission, *i.e.* the law is clear that resources must be preserved and passed on unimpaired to succeeding generations. In the case of some parks, there may be alternative ways to accomplish that preservation, and these different approaches will then provide the basis for alternative plans. In the case of Lassen, scoping comments recognized the need for and urgency of resource preservation but did not suggest alternative ways to preserve the resources. A number of commenters at scoping meetings noted the desirability of managing the park on more of an ecosystem basis in cooperation with other public and private land managers in the region. This need is recognized by NPS as an essential requirement for effective long-term resource preservation. So proposals for increased attention to ecosystem management are common to all the action alternatives and do not vary among the alternative plans.

MANAGEMENT ZONES AND PRESCRIPTIONS

Management zones are used in the alternative plans to describe the desired mix of resource conditions and visitor experiences to be achieved in different areas of the park. Zone prescriptions remain consistent but the size and location of zones may vary among alternative plans.

Eight zones are identified at Lassen Volcanic National Park: Wilderness, Winter Backcountry, Scenic Drive, Summer Developed, Winter Developed, Remote Unit Access Road, Administration, and Inholder Zone.

Management zone prescriptions provide the basis for a system of management intended to ensure that resources are passed on unimpaired to future generations and visitor experiences remain high quality. In the popular parlance, this is generally referred to as “managing within carrying capacity”. The Federal law requiring general management plans for all parks includes a provision requiring commitments to management within carrying capacity.

There is no evidence to suggest that Lassen Volcanic National Park is, on a parkwide basis, exceeding or even close to exceeding its carrying capacity, or that carrying capacity will be exceeded during the life of this general management plan considering the potential for increased visitation. While resource damage is occurring at discrete locations within the park, both in developed areas and in backcountry locations, that damage is attributable to poorly located or designed facilities and/or insufficient visitor management, and can realistically be remediated by measures other than visitation reduction. Moreover, existing facilities such as campgrounds, picnic areas, parking lots, etc. are sufficient to accommodate much of the potential increased visitation, except that occurring at peak weekend and holiday periods.

The Park Service uses a management system called Visitor Experience and Resource Protection, or VERP, as its basic framework for managing within carrying capacity or achieving the resource conditions and visitor experiences prescribed for the zones. VERP provides for development of a set of measurable resource and visitor experience standards that are monitored on a regular basis. If the monitoring reveals that existing management is not achieving the prescribed resource and visitor experience conditions, then the management approach is revised as necessary. Generally a number of options will be available to achieve the desired conditions, ranging from staffing changes to physical facility and access changes. In some cases direct limitations on visitor use levels may be necessary.

The General Management Plan accomplishes only the initial steps toward implementation of the VERP program at Lassen. The remaining steps will be undertaken in future years and it may be some time before Lassen's VERP program is fully implemented.

Wilderness Zone

This zone, encompassing a majority of park land, consists of legislatively designated wilderness and lands proposed for designation. It is managed consistent with the Wilderness Act and NPS policies regarding wilderness.

Resource Conditions

Natural resource conditions are intended to be pristine in this zone, regulated fully by natural processes uninfluenced by human activities except as may be needed to restore natural conditions, e.g. removal of invasive and disruptive non-native species. Plant and animal communities function as part of an entire ecosystem, and natural geologic processes proceed unhindered. Fire is recognized as a normal process necessary for the restoration of natural vegetative communities.

Historic structures and features and archeological sites within the zone are documented and appropriate preservation standards applied.

Visitor Experience

Visitors to the wilderness experience a landscape where human impacts are minimized. Use of this zone requires a relatively high degree of physical exertion and an extended time commitment. The wilderness experience offers a moderate to high degree of challenge and adventure. Opportunities for independence, closeness to nature, tranquillity, and the application of outdoor skills are high. There is a low probability of encountering other visitors or NPS staff except in the vicinity of lakes. Visitor use at lakes is dispersed and of low intensity.

Management

Resource protection is achieved primarily through appropriate visitor behavior and limitation of visitor numbers. Management for visitor protection and safety within this zone is very limited. Onsite controls and restrictions are minimized and those that are present are subtle. Offsite management of visitor

behavior includes wilderness visitor education programs, e.g. “Leave No Trace” information, and wilderness permitting procedures. Restoration projects such as disturbed land reclamation and exotic species removal may be undertaken. Fire is used to help achieve natural processes.

Developed facilities are minimal in this zone, consisting of trails, minimal directional signing, and bridges where essential at key stream crossings. The designation of primitive campsites is an option to be applied if needed to achieve resource protection goals.

Winter Backcountry Zone

This zone goes into effect when the main park road is closed for the winter season. It includes the entire park except the Wilderness, Administrative, Inholder, Remote Unit Access Road, and Winter Development Zones.

Resource Conditions

Natural processes are unimpeded in this zone. Cultural resources are documented and appropriate preservation standards applied.

Visitor Experience

Visitors to this zone experience wilderness-like conditions. While human improvements may be readily observable in some areas, they are generally not operational. Use of this zone requires a relatively high degree of physical exertion and a long time commitment. The environment offers a moderate to high degree of challenge, adventure, and risk. Opportunities for independence, closeness to nature, tranquillity, and the application of outdoor skills are high. There is a low probability of encountering other visitors or NPS staff except within one mile of the winter developed zone.

Management

Management in this zone is similar to wilderness. Management for visitor protection and safety within this primitive zone is low to moderate. Resource protection is achieved through visitor education, control of numbers as needed in sensitive areas, and regular patrols and enforcement. Some interpreter led trips may be provided. There is no additional development in this zone, except for signing, to facilitate winter visitor use or park management.

Scenic Drive Zone (Summer)

This zone includes the main park road extending from the Highway 44 junction at the north entrance to the southwest entrance. It encompasses the paved roads, pullouts, overlooks, and associated trails and small picnic areas, parking areas, and other facilities that support visitor touring. It includes Manzanita Lake, Emerald Lake, Reflection Lake, Devastated Area, Sulphur Works, and Lake Helen, as well as Lassen Peak Trail and Bumpass Hell Trail.

Resource Conditions

Although there is concentrated visitor use and extensive development in this zone, natural systems are not significantly affected. Biological inventories and assessments provide sufficient information to ensure that there are no impacts from development or visitor use on sensitive or T&E species habitat, wetlands are avoided in any new development and restored where already impacted, thermal areas are protected from inappropriate visitor uses, and streams are protected from erosion and polluted runoff.

Cultural resources in this zone, including the historic Route 1 landscape, are documented and appropriate preservation standards applied.

Visitor Experience

Visitors use the paved roadways, trails, and associated developments in the scenic drive zone to tour the park, enjoy scenic overlooks and interpretive media, and gain access into other park zones. Visitor attractions are convenient and easily accessible. Observing the natural environment is an important activity. The probability of encountering other visitors is very high, and moderate for encountering NPS staff. Many visitors may be present in some areas. Some trails and most facilities in this zone are accessible to disabled persons. Lakes and trails have concentrated visitor use and developed visitor facilities.

Management

Intensive management is provided in the scenic drive zone to ensure resource protection and public safety with frequent ranger patrols and regular trail, road and roadside facility maintenance. Interpretation includes signs, displays, wayside exhibits and milepost guides. Some interpreter-led programs and tours may also occur in this zone. Development is evident, but is designed to harmonize with the natural environment. Facilities are rustic and consistent with the defining elements of the cultural landscape. Visitor facilities include unpaved maintained trails with bridges at key creek crossings.

Visitor stopping points along the road serve a number of different purposes and they are developed and managed accordingly.

Major interpretive sites and trailheads have rest rooms, trashcans, wayside exhibits, and paved parking areas designed for traffic flow and safety. Major sites include Bumpass Hell, Sulphur Works, Lassen Peak, and Devastated Area.

Minor trailheads and interpretive sites have wayside exhibits, are generally unpaved, but have designated parking. Trash cans and picnic tables may be provided.

Individual pullouts are located and designed to allow opportunities for a visitor or group of visitors to enjoy the views or other park resources for a period of time without the disruption of other visitors. Pullouts accommodate one to three vehicles. They are unpaved, but designed to prevent informal enlargement. Trash cans and picnic tables may be provided.

Remote Unit Access Road Zone (Summer)

This zone encompasses the major access roads serving Butte Lake, Juniper Lake, and Warner Valley areas.

Resource Conditions

Resource protection objectives are the same as in the Scenic Drive zone. Significant natural processes and sensitive habitat are not affected. Cultural resources are documented and appropriate preservation standards applied.

Visitor Experience

This zone provides a driving experience that gives visitors a sense of being in a largely undisturbed natural environment. Regularly maintained roads and directional signs are the only facilities present.

The probability of encountering other visitors is high, and it is moderate for encountering National Park Service staff.

Management

Regular ranger patrols occur on these routes for visitor and resource protection. Onsite controls and restrictions are subtle, *e.g.*, berms, rocks, and vegetation to prevent vehicles from leaving the road. Some development is evident, but design is such as to harmonize with the natural environment.

Summer Developed Zone

This zone includes areas with major visitor facilities that are accessible and usable in the summer months. Visitor service facilities, concession facilities, ranger stations, and major campgrounds and picnic areas are included in the developed zone.

Resource Conditions

Natural resource protection objectives are the same as in the Scenic Drive zone. Although there is substantial development and concentrated use, significant natural processes and sensitive habitat are not affected.

Cultural resources are documented and appropriate preservation standards applied. Some historic structures may be adaptively used.

Visitor Experience

Although buildings, structures, and the signs of people predominate, natural elements are present. The facilities are convenient and easily accessible. There is little need for visitors to physically exert themselves, apply outdoor skills, or make a long time commitment to see the area. Opportunities for adventure are minimal. Many of these areas provide opportunities for social experiences, interpretation and educational programs, and compatible recreation activities. The probability of encountering other visitors or NPS staff is very high.

Management

There is a high level of management for visitor protection and safety, with frequent ranger patrols. Interpretation is provided through wayside exhibits and interpreter-led programs. Facilities are designed to be rustic and non-intrusive and conform to parkwide architectural standards. Landscaping employs native plants. Most facilities are accessible to visitors with disabilities, and there are some accessible trails.

Winter Developed Zone

This zone includes areas with major visitor facilities that are accessible and usable in the winter months. Visitor service facilities, concession facilities, and ranger stations are included in the developed zone.

Resource Conditions

Natural and cultural resource protection objectives are the same as in the Summer Developed zone.

Visitor Experience

Visitors experience a high degree of interaction with park staff and other visitors while acquiring the information and conveniences necessary to learn about and enjoy the park's winter environment.

Management

There is a high level of management for visitor protection and safety. Interpretation is provided through wayside exhibits and interpreter-led programs. Most facilities are accessible to visitors with disabilities.

Administration Zone

This zone includes the developed areas used for administration and maintenance. Included in this zone are major administrative areas at headquarters and Manzanita Lake, minor service roads for administrative use, and minor administrative structures and utility features.

Resource Conditions

Although buildings, structures, and signs of people predominate, conflicts with natural processes and sensitive species and habitats are avoided. Cultural resources are documented and appropriate preservation standards applied. Historic structures may be adapted for current needs.

Visitor Experience

Visitors enter these areas only infrequently. When they do, they are confronted with developments reflecting environmental sensitivity and sustainability.

Management

There is a high level of management for protection and safety. Facilities are accessible to employees with disabilities. Facility design conforms to parkwide architectural design standards and is sensitive to historic settings and landscapes. Landscaping employs locally obtained native plants.

Inholder Zone

This zone includes the two areas of inholdings within the park, Hat Creek and Juniper Lake, and the roads needed to provide access. The total area of the zone is approximately 5.66 acres-within the zone are 14 privately owned tracts.

Resource Conditions

Buildings, structures, and signs of people predominate in privately owned lands in this zone. Roads across park land are maintained to avoid damage to significant resources.

Visitor Experience

Visitor presence in these areas is minimized.

Management

- The park will acquire these tracts as they are offered for sale. Park staff will cooperate with property owners to achieve mutual objectives. Tracts that are acquired will be rezoned as appropriate.

ALTERNATIVE A: NO ACTION

Vision

There is no current long-range, comprehensive vision for the park as the existing general management plan was completed many years ago and much has changed in the intervening period. In the absence of such a vision, park management is often forced into a reactive mode, dealing piecemeal with the most pressing issues as they arise.

Having a widely supported and clearly articulated vision does not, of course, ensure that financial resources will be available to address the significant existing problems faced by the park, the most pressing of which are outlined below. However, the vision will clarify the scope and scale of what is needed, and give internal and external funding sources a picture of how they can assist and the assurance that there is a coherent long-term strategy for achieving the park purpose.

Concept

This alternative assumes continuation of the existing conditions and trends. Management would continue to attempt to balance meeting resource protection imperatives with meeting visitor demand. To provide a baseline for comparison of alternatives, this alternative assumes that neither capital nor operational funding for the park would increase.

Management Direction

Park Zoning

The existing park zoning scheme divides the park into four basic zones designated Natural, Historic, Development, and Special Use. The zone titles indicate the intended management emphasis for the included area. Developed several decades ago, this zoning system has not proven to be a useful aid to management because there is no clear definition of intended objectives and no link to a carrying capacity management system.

Resource Protection

The park has a modest resource protection program that uses base funding and various special funding programs to provide fiscal resources. A Resource Management Plan provides overall program guidance and coordination. The park collaborates extensively with Lassen National Forest in several resource management areas, especially in fire management and wildlife management. These cooperative efforts represent the first steps toward comprehensive regional ecosystem management. The park's progress in this area is constrained to some extent by its modest resource management budget, which forces the park to focus on near-term and immediate problems and limits its ability to address longer term issues and potentials for comprehensive collaborative efforts.

There are a number of existing and potential problem areas relating to resource protection. Key problem areas, and the extent to which they can realistically be addressed in this alternative, are discussed below:

Lack of basic natural and cultural resource data and research to guide management activities:

The quality of data and information on resources in the park is relatively poor. Lack of natural resources information limits the park's ability to manage resources on a scientific basis. For example, non-native fish species occur in Emerald, Manzanita, and Reflection Lakes, and probably in other lakes as well. Effective management of these species requires documentation and analysis of control methods.

Likewise, the extent of the encroachment of non-native plants is not fully known, and therefore, cannot be adequately managed.

Likewise, the extent of cultural resources at Lassen is not completely known. Archeological surveys for the park are incomplete, ethnographic studies and consultations have been initiated but not completed, and cultural landscape evaluations have yet to be completed. In the absence of this information it is impossible for the park to take steps to preserve and protect the resources or interpret them for the visitors. It is possible that important resources are being lost but it is impossible to know to what extent.

Under this alternative, cultural resource assessments and inventory of plant and animal species would move forward slowly, as would the further research and study necessary to guide resource management programs.

Visitor use impacts: Concentrated visitor use on lake shores and on popular trails such as Lassen Peak and Bumpass Hell trails has crushed vegetation, degraded water quality, and eroded soil. Overuse by stock on certain trails, *e.g.* Devil's Kitchen, Sifford Lakes, Terminal Geyser, similarly degrades resources. Poor trail design has resulted in erosion and braided routes in many locations. Trail crews would be able to repair some but not all trail erosion and braiding. However, there would likely be no improvement in the park's ability to manage visitor use in these areas to reduce impacts.

Wetland impacts: Facilities are inappropriately located in wetland/riparian zones at Drakesbad, Kings Creek, Summit Lake, Juniper Lake, and Manzanita Lake. Visitor impacts spill over from developed sites to surrounding areas in several locations, including Summit Lake, Lost Creek, and Kings Creek. Facilities would be removed from wetland and riparian areas as special project funding becomes available. The park has little capability to undertake these projects within base funding.

Fire suppression effects: More than half a century of suppression of natural fire has significantly disrupted natural vegetative associations and related wildlife. Prescribed fires would be used to restore the natural fire regime using FIREPRO funds. However the overall progress in this area over the next few years would be quite modest compared to the magnitude of the need at Lassen.

Disturbed lands: Disturbed land remains untreated, including the old ski area and several abandoned development sites at Manzanita Lake, including Summertown, the old campground loops, the old north district office, and abandoned phone lines. Redundant service roads and structures remain at Butte and Juniper Lakes. Plans to restore and revegetate the old ski area are underway. Restoration of other abandoned sites would most likely occur slowly over the next several years under current program constraints.

Remote site protection: A shortage of rangers in park wilderness areas and in remote sites such as Butte Lake and Juniper Lake has resulted in resource degradation by unrestrained dogs, trespassing cattle, and vandalism by visitors. Under this alternative, more rangers would not be available to address these issues in the wilderness areas.

Historic structure protection: While the park has been able to maintain some historic buildings, especially those in accessible areas, maintenance of others has been inadequate. Examples include wilderness cabins and fire lookout, historic culverts on the main park road at Kings Creek, Lost Creek, and Hat Creek, and historic structures in the Warner Valley. With current staffing levels and priorities, it is unlikely that this situation would change.

Museum storage: The storage facility for the museum collection is inadequate and would not be addressed under the No Action Alternative.

Visitor Experience: Lassen Volcanic National Park offers visitors minimal visitor services, which generally result in high-quality park experiences and most visitors have an enjoyable visit. (See Visitor Use analysis in the Affected Environment section for more information on existing use patterns.) However, visitors and staff have identified a number of problem areas needing attention, and a number of opportunities where the park could potentially improve visitor service and experience. These problems and opportunities are discussed below. These will be addressed as feasible over the next few years. Some of the more pressing and critical problems, *e.g.* those affecting safety, will be given priority. Many of the problems, and most of the opportunities, will not be addressed in this alternative.

Potentially hazardous visitor facilities: First consideration would be given to rectifying hazardous visitor facilities, including:

Slippery trails at Kings Creek and Bumpass Hell;

Aging boardwalks and the lack of handrails in thermal areas;

Dangerous curves on roads to Warner Valley and Juniper Lake;

Overflowing parking lots and dangerous pedestrian crossings at Bumpass Hell, Lake Helen, Sulphur Works, Kings Creek trailhead, and Emerald Lake; and

Circulation hazards (bikers, pedestrians, autos) around the camper store and gas station at Manzanita Lake.

Most of these problems would likely be addressed during the life of this management plan. Some, such as pedestrian crossings, could be ameliorated immediately without much funding. Others would require substantial design and construction funding which is not in the current budget, but could realistically be funded through servicewide programs.

Minimal interpretation: This is an area of deficiency noted frequently by visitors and by staff.

Lack of facilities for orientation at the southwest entrance, where the majority of visitors enter the park;

Inadequate, inconsistent, and poorly conceived wayside exhibits on the main road; no mile marker system;

No coherent parkwide sign plan;

Limited formal interpretive programs with few opportunities for visitors to contact a roving interpretive ranger;

No interpretive services or facilities at outlying areas such as Butte Lake, Juniper Lake, and Warner Valley;

Poor condition of amphitheaters at Butte Lake (currently no scheduled use) and Summit Lake.

Under the No Action alternative, non-personal interpretation, such as wayside exhibits on the road and in outlying areas would improve and a sign plan would be implemented. It is unlikely that the number of rangers would be increased to provide personal interpretation or that interpretation in the outlying areas could be improved.

Deficient visitor service facilities: These include:

Poorly located pullouts on the main road that limit scenic view opportunities;

Outdated/substandard restrooms, parking lots, and support facilities on the main road and at camp and picnic areas;

A primitive and inadequate camp area at Warner Valley;

Substandard facilities at Manzanita Lake, including a poorly located boat ramp without adequate parking and many visitor facilities not accessible to disabled persons;

Few winterized facilities capable of use other than in summer months;

Site planning and native plant landscaping lacking in all developed areas;

Primitive southwest entrance facilities with no NPS contact, limited food and gift shop services, and minimal winter facilities while demands for winter use in that area continue to grow.

Only a few of these facilities would be improved under the No Action Alternative. Facilities for handicapped persons would receive priority. An improvement program for toilet facilities at key areas is already underway and would be completed over several years. It is unlikely that many visitor service facilities would be winterized.

Opportunities for added visitor facilities. Public scoping comments suggested a number of potentially feasible additional public use facilities in the park.

Improved winter use facilities and NPS presence and programs at Manzanita Lake;

Picnicking at pullouts on the main road, at Reflection Lake, and at the southwest entrance;

More group camping at the Lost Creek area; bus-group picnic facility at Kings Creek;

A staging area for hikes to the Craggs area from Manzanita Lake;

Expansion of existing family campgrounds to provide additional sites.

None of these opportunities would be pursued under this alternative.

Management Efficiency

Planning

The park has embarked on an era of planning and collaborative management after several years during which planning, data collection, and analysis were lacking. Management is committed to the following Study traffic and visitor use patterns to better guide capital investments and operational priorities;

Develop planning efforts that would be completed over time:

A parkwide trail plan to create a clear direction for maintenance and improvement priorities;

Develop integrated site plans for all developed areas to avoid haphazard growth;

Develop overall architectural guidelines for the park to prevent a cluttered and ramshackle appearance in developed areas.

Partnerships & Community Relations

Partnerships help the park and its partners to achieve mutually beneficial results. The park establishes and maintains partnerships as long as they are beneficial to the park. Current partnership efforts include:

Private non-profit organizations which specifically address the mission of the park and NPS.

Other federal, state, and local governmental organizations which collaborate on projects and operations.

Educational institutions, which contribute to park resource preservation and visitor enjoyment through research, programs, and projects.

Management is committed to a renewed emphasis on community relations in which the park is actively planning and performing community outreach. This activity is seen as essential to heighten awareness of local communities to the park and the NPS role both in the region and nationwide. The following community relations activities are currently underway:

Information regarding park activities, educational and recreational opportunities and special interests is provided on a continuous basis.

Tribal communities are encouraged to actively review and participate in planning and other projects.

Opportunities for volunteerism and other stewardship activities are disseminated in nearby communities.

Under current funding and staffing, partnership and community relations efforts are necessarily limited. However, management is committed to improvements in this area as a key way of leveraging results.

Administrative Facilities

The headquarters area located at Mineral contains insufficient office and maintenance workspace to support even the current level of operations. Utilities in this area are obsolete, hazardous/unsafe, and unreliable. The administrative area at Manzanita Lake is also inadequate and inefficient.

The southwest entrance has significant substandard administrative facilities. The primary facility, known as the Chalet, is notorious for its poor design, shoddy construction, lack of accessibility, and costly maintenance. Other problems in this area include a poorly located, designed, and sized entrance station, a parking lot layout which is unduly costly to plow in winter months, and a road to the water intake which is overly steep and costly to maintain.

Needed administrative facilities include:

Additional consolidated office space for staff at headquarters;

Additional and modernized facilities for maintenance at headquarters;

Improved, safe, and modernized utilities at headquarters;

Additional housing for seasonal employees and cooperators at headquarters;

Office space at headquarters for the cooperating association;

Work space for interpreters at Manzanita Lake;

Housing for concession employees at Drakesbad;

Replacement of the maintenance building, community building, and utility lines at Manzanita Lake.

Office space at the southwest entrance to allow functioning of the South District Office in efficient proximity to the workload.

An improved entrance station at the southwest entrance.

With current budget and priorities, these improvements would not be made under the No Action Alternative.

Maintenance

Virtually all of the park's structures, campgrounds, utility systems, and roads were constructed during either the CCC era (1930-1940) or the Mission 66 era (1957-1966). Consequently most of the park infrastructure has surpassed its real and economic life and is functionally obsolete. Management of this aging infrastructure, much of which is historic, requires a wide range of interdisciplinary workers skills and is expensive. Given the current operational funding levels, much important maintenance work will necessarily continue to be deferred.

COST ESTIMATES

The park base funding (operational budget) would not change with this alternative since the concept is for continuation of the current conditions. Some project funding would be available to make some incremental improvements.

The annual operating budget for the park for fiscal year 1999 was \$3.1 million. Authorized FTE (full-time equivalent employees) total 67.

ALTERNATIVE B: RESOURCE PRESERVATION AND BASIC VISITOR SERVICE

Vision

Lassen Volcanic National Park is a model for ecosystem management, wilderness preservation, and cultural resource protection for the benefit of present and future generations.

Resource conditions are known and basic trends of natural systems have been assessed. Scientifically sound mechanisms are in place to ensure that natural systems and processes are perpetuated. Cultural resources and their significance are documented and appropriate preservation standards are applied. All stakeholders play an active stewardship role.

Visitors are informed and oriented to safely use the park without damaging resources. Wilderness visitors experience a landscape largely devoid of human impacts.

Concept

This alternative preserves, protects, and restores natural and cultural resources and wilderness conditions. Designated wilderness would be increased by approximately 25,000 acres. See Map 8, Areas Considered for Wilderness Expansion. Gathering of baseline data on natural and cultural resources would be accelerated. This information is essential for completion of scientific studies to guide resource preservation and restoration activities for such needs as exotic species control and habitat restoration for threatened and endangered species. Tested monitoring methods would be applied. Park staff would increase efforts to work with the Forest Service and other regional land managers toward ecosystem management. Visitor activity would be closely managed to prevent resource damage. Visitor service functions would be directed primarily to safety and protection. Interpretive activities would be focused to provide basic orientation/information and encourage individual stewardship and resource protection. Facility improvements would be undertaken to achieve resource protection and improved management efficiency.

Budget increases for staff would be targeted to resource management staff, but would also include ranger activities, interpretation, and maintenance to support functions related to resource management. Staff and funding increases would result in:

- More effective control of exotic plant and animal species, including non-native fish species in lakes and streams;

- Reintroduction of selected extirpated species such as the wolverine and fisher;

- Increased use of prescribed fire to restore natural conditions and reduce fuel loads;

- Inventory and monitoring of natural resources, especially targeted species such as the Cascades frog;

- Management of all cultural resources to achieve the servicewide standard;

- Better maintenance of trails and service roads to prevent resource damage;

- Stimulation of increased visitor stewardship through interpretive programs.

Map 8: Areas Considered for Wilderness Expansion

Greatly improved visitor service at the southwest entrance.

Increased ecosystem management efforts.

Increased “partnering” efforts with local communities, other government agencies, American Indian communities, and private organizations

Management Prescriptions by Zone

Parkwide zoning in summer and winter periods is shown on Maps 9 and 10. The acreage of the park in each of the zones is shown in the table below:

Table 1: Park Acreage by Zone for Alternative B

Zone	Acres
Summer:	
Wilderness	104,594.34
Scenic Drive	1,192.00
Summer Developed	246.00
Remote Unit Access Road	334.00
Administration	80.00
Inholder	5.66
Winter:	
Winter Wilderness & Backcountry	106,266.00
Winter Developed	106.00

Needed or Allowable Changes

Map 11, Restoration and Development Projects, shows major projects to be undertaken at various locations in the park which are discussed below.

Wilderness Zone

The Wilderness Zone would include existing designated wilderness plus an added area of approximately 25,000 acres, which will be evaluated as an area of consideration for inclusion into designated wilderness.

Inventorying and monitoring will determine existing wilderness conditions, where problems exist, and what type of management actions are needed. Studies would assess the most effective means of reducing concentrations of visitors on lake shores. Possible measures could include designating primitive campsites or using a permit system with quotas. Studies would determine how best to manage stock use to avoid adverse resource impacts. Measures would include reevaluation and possible revision to existing carrying capacities and group size limits, trailhead quotas, redesign of trails to withstand stock use, and dispersal of use to less sensitive areas. Information would be provided to visitors on low-impact backcountry practices.

Disturbed areas would be revegetated and historic structures rehabilitated.

Ranger patrol levels in the wilderness would be increased to provide education, prevention, and enforcement, and should decrease problems with dogs, cattle trespass, and vandalism.

A monitoring program would document the extent of flights over wilderness to determine impacts on wilderness values of solitude and quiet.

Remote Unit Access Road Zone

Because these roads provide access to Forest Service, private lands, and park sites, management and maintenance would be coordinated among NPS, Forest Service, and the counties.

The Warner Valley Road would be redesigned and segments realigned to prevent soil erosion, improve public safety, and improve road drainage. The overall design of the roads would remain unpaved and designed for low-speed travel, and alignments would not be changed except for short sections of the Warner Valley Road. The abandoned sections of that road would be recontoured and revegetated.

Increased ranger presence would be provided on these roads for fee collection and resource protection.

Scenic Drive Zone

Improved information would encourage dispersal of visitors in the highly visited thermal areas to less crowded areas and educate visitors about hazards.

A monitoring program would document the extent of flights over Lassen Peak to determine impacts on park values of solitude and quiet.

Physical improvements would be undertaken for resource protection purposes such as redesigning Bumpass Hell Trail in locations where resource damage is occurring, and realignment of portions of Lassen Peak Trail to bypass late season snow fields. Additional resource protection improvements would include redesign and relocation of the southwest entrance station, rehabilitation of several historic culverts, repair of road structural deficiencies, and restoration of disturbed lands at the site of the old North District ranger station. Brokeoff Mountain trailhead would be improved to better delineate the parking area and, because this trailhead is outside the entrance station, a fee collection device would be installed along with increased visitor information exhibits. All pullouts where visitor safety is compromised and/or resource damage is occurring would be evaluated and redesigned for appropriate use.

Increased staffing would better manage use on Lassen Peak Trail, especially early in the season when snow remains along the trail. Actions would include better marking the trail route, provision of trail signs, and temporary closures where use cannot be managed on a non-destructive basis.

Overall ranger presence would be increased for education, prevention, and enforcement.

Summer Developed Zone

Site assessments and plans for each key development area would be undertaken to determine means of reducing resource impacts and improving visitor safety. Site plans would also look for opportunities to improve accessibility for disabled persons, and consider sustainable practices such as graywater handling

Key operational and physical changes needed in the zone for specific areas are discussed below:

Southwest Entrance: A new visitor services facility would be developed in this area to provide for visitor orientation, Museum Association sales of interpretive & educational materials, food service, gift shop, other appropriate commercial services, and ranger and maintenance

operations. Parking areas would be redesigned to improve circulation, add some capacity, and enhance the esthetics of the area.

Kings Creek: This area would be redesigned to improve resource protection, safety, and visitor experience. The existing scale and functions would be retained.

Lost Creek Group Campground: This heavily used group campground would be retained at its existing scale and design, but would be redeveloped with improved restrooms and septic system, improved circulation, and better definition of campsite and parking areas.

Crags Campground: This campground would be retained at its existing scale and design but would be managed solely as an overflow facility.

Summit Lake: The campgrounds would be redesigned to eliminate existing impacts to riparian areas and facilitate non-damaging visitor use of the area. Improvements would include upgraded restrooms/sewage treatment system, relocated campsites and internal roads, development of a new horse corral, and a rehabilitated amphitheater. Additional improvements in the area would include increased water storage, improved trailhead parking, and consolidation of the ranger station outbuildings.

Manzanita Lake: Several disturbed former developed sites in this area would be restored to natural conditions, including the Summertown development, former campground loops, and the existing interpretive workroom building and site. The abandoned telephone lines in the area would also be removed and a vegetation management plan would be implemented to provide for regeneration of Jeffrey pine.

A comprehensive site plan would be completed for this area to alleviate safety and environmental impact concerns. The plan would be expected to improve circulation in this oft-congested area, and pedestrian and bicycle trails would be developed to provide access between the lake, museum, store, campground, and amphitheater, and a trail would be developed to Reflection Lake. The boat launch and parking area would be relocated to a more functional and resource sensitive location.

The former campground "A" Loop would be developed to serve as a picnic area. Accessible showers and restrooms would be provided in the campground and the existing facilities upgraded to meet health and safety codes. Existing campground roads and the amphitheater would be rehabilitated.

Butte Lake: Excess government structures and service roads would be removed and lands restored to natural conditions.

Juniper Lake: The existing campground would be relocated from its present location on the lakeshore and in the riparian zone to a less sensitive and more resilient area, retaining the same scale of 18-20 sites. A consolidated trailhead with adequate directional signing would be provided and a canoe put-in location would be designated.

Warner Valley: The existing trailhead parking would be relocated from its wetland location and the disturbed area restored, and historic structures in the area would be rehabilitated and maintained. The existing campground would be relocated to only the north side of the road, retaining approximately the existing scale but eliminating riparian conflicts and safety concerns.

A trail would be developed from the campground to Drakesbad Meadow and other existing trails.

A comprehensive site plan would be developed for Drakesbad to address natural and cultural resource conflicts and to improve parking and circulation.

Visitor orientation and safety information would be provided at Drakesbad.

Winter Developed Zone

Resource protection and visitor information at the north entrance would be enhanced during peak visitation periods by increasing the current limited ranger station staffing to allow the facility to remain open eight hours per day Friday through Monday.

The new visitor services facility at the southwest entrance would remain open in winter months to provide for visitor orientation, Museum Association sales of interpretive & educational materials, food service, gift shop, other appropriate commercial services, and ranger and maintenance operations.

Administration Zone

A comprehensive site analysis would be completed for the headquarters area to guide construction of new administrative and maintenance complexes, and reconversion of the four satellite administration buildings to housing. Utilities would be upgraded and replaced as needed for safe and dependable service, with provisions for back-up power for use on those frequent winter occasions when commercial power is down.

At Manzanita Lake, a comprehensive site plan would be completed to guide the development of a consolidated maintenance facility, other administrative facilities, and provision of landscaping for improved esthetics.

As staff is added to implement this alternative, additional employee housing may be required. Specific housing needs will be addressed at that time following National Park Service housing policy.

Estimated Costs

The costs discussed below consist of rough estimates of one-time and recurring expenditures needed to achieve the goals of the alternative. The estimates are sufficiently accurate to allow for comparison between alternatives but are not appropriate for use in developing budgets or seeking appropriations.

One-time project costs for this alternative, including detailed planning and information-collection projects as well as construction projects, are estimated at approximately \$68.2 million. Construction project estimates include, in addition to actual construction costs, required predesign natural and cultural resource analysis, design, and an allowance for contingencies. The costs are summarized below. The highest funding priorities would be accorded to remediation of environmental intrusions in backcountry and developed areas and natural and cultural resource management activities, since those activities are urgently needed to preserve critical park resources. High priority would also be accorded to development of a visitor service facility at the southwest entrance, where visitor orientation is currently minimal and urgently needed, and to remediation of safety deficiencies at various parking lots on the main road.

Table 2: Estimated Costs for Alternative B

Project Category	Estimated Total Cost
Remediate Backcountry Environmental Intrusion	\$ 1,680,000
<i>Major Projects:</i>	
Remove Redundant Trails	
Revegetate Disturbed Areas	
Bumpass Hell Trail Improvements	
Lassen Peak Trail Realignment	
Remediate Developed Area Environmental Intrusions	\$5,845,000
<i>Major Projects:</i>	
Underground Utility Lines	
Improve “Graywater” Management	
Restore Disturbed Lands	
Remove Obsolete/Excess Structures	
Relocate Facilities from Wetlands & Riparian Areas	
Natural Resource Management	\$5,585,000
<i>Major Projects:</i>	
Obtain Baseline Data	
Exotic Species Research & Control	
Design Monitoring Program	
Stock Carrying Capacity Analysis	
Cultural Resource Management	\$4,225,000
<i>Major Projects:</i>	
Obtain Baseline Data	
Rehab Historic Structures	
Construct Collection Storage Facility	
Developed Area Planning	\$725,000
<i>Major Projects:</i>	
Comprehensive Trail Plan	
Parkwide Design Standards for Structures & Landscapes	
Site Plans for All Major Developed Areas	
Visitor Facility/Orientation Improvements	\$13,890,000
<i>Major Projects:</i>	
Southwest Visitor Service Facility	
Redesign/Reconstruct Bumpass Hell parking	
Upgrade safety at Major Parking Lots	
Upgrade Toilets on Main Road	
Relocate/Upgrade Main Road Pullouts	
Construct Summit Lake & Butte Lake Horse Corrals	
Improve Boat Launch at Manzanita & Juniper Lake	
New Picnic Area at Manzanita lake	

Project Category	Estimated Total Cost
Improve Trails at Manzanita Lake	
Improve Water & Sanitation at Manzanita lake CG	
Improve Water & Sanitation at Warner Valley CG	
Circulation Improvements	\$14,790,000
<i>Major Projects:</i>	
Repair Main Road Structural Deficiencies	
Improve Traffic Controls & Signs	
Snow Removal Equipment & Storage	
Improve Drakesbad Roads & Parking	
Administrative Facility Improvements	\$21,490,000
<i>Major Projects</i>	
New Headquarters Admin & Maintenance Facilities	
Upgrade Headquarters Utilities	
Upgrade/Modernize Manzanita Lake Facilities	
Total Estimated One-Time Costs	\$68,230,000

Total **annual operation and maintenance costs** for this alternative would approximate \$6.8 million and FTE would total 123. (This compares with current levels of \$3.1 million and FTE of 67.) The operations funding and personnel increases would occur primarily in the resource management and maintenance functions, but with some increases in protection, interpretation, and administration as well.

Map 9. Summer Zoning—Alternatives B, C, and D

Map 10. Winter Zoning—Alternative B

Map 11. Restoration and Development Projects—Alternative B

ALTERNATIVE C: RESOURCE PROTECTION AND ENHANCED VISITOR EXPERIENCE

Preferred Alternative

Vision

Lassen Volcanic National Park is a model for ecosystem management, wilderness preservation, and cultural resource protection for the benefit of present and future generations.

Resource conditions are known and basic trends of natural systems have been assessed. Scientifically sound mechanisms are in place to ensure that natural systems and processes are perpetuated. Cultural resources and their significance are documented and appropriate preservation standards are applied. All stakeholders play an active stewardship role.

A diversity of visitors are provided year-around opportunities for education, enjoyment, and understanding which inspire appreciation of resource values and dedication to stewardship. Wilderness visitors experience a landscape largely devoid of human impacts.

Concept

This alternative includes all of the resource management and protection features of Alternative B. It differs only in its approach to visitor service and experience. Its provisions are intended to provide visitors with high quality park experiences throughout the calendar year. To accomplish this objective, the plan includes:

- Winterization of facilities to allow day use in winter and shoulder seasons.

- Increased interpretive staffing to provide for ranger-led programs in key visitor locations, including remote sites such as Butte Lake, Juniper Lake and Warner Valley.

- Improved campfire and amphitheater facilities to support interpretive programs.

- Improved pullouts on the main road to provide interpretive and scenic view opportunities.

- Improved visitor information including radio broadcasts and written guides.

- Enhanced winter access at the northwest entrance.

- Improved facilities for environmental education.

Management Prescriptions By Zone

Summer zoning is the same as in Alternative B, Map 9. Winter zoning, shown on Map 12, differs in the Manzanita Lake area as the Winter Developed Zone is extended to the camper store. The acreage of the park in each of the zones is shown in the table below:

Table 3: Park Acreage by Zone for Alternative C

Zone	Acres
Summer:	
Wilderness	104,594.34
Scenic Drive	1,192.00
Summer Developed	246.00
Remote Unit Access Road	334.00
Administration	80.00
Inholder	5.66
Winter:	
Winter Wilderness & Backcountry	106,200.00
Winter Developed	172.00

Needed or Allowable Changes

Map 13, Restoration and Development Projects, shows major projects to be undertaken at various locations in the park.

Parkwide

Many of the visitor use facilities not available or fully functional in the colder months of the shoulder season would be winterized to facilitate use in a lengthened season. Also, a radio broadcast Traveler Information System would be installed at four locations and maintained to improve the dissemination of visitor information.

Wilderness Zone

Education efforts would be undertaken aimed at instilling wilderness ethics in visitors, and increasing stewardship by user groups to support wilderness values. The park would increase staff available for information and partnership activities with appropriate groups.

Remote Unit Access Road Zone

The road to Warner Valley would be realigned and upgraded for safety and accessibility.

Fee stations would be improved to provide more information to visitors, and technology would be employed to make fee collection more user friendly.

Scenic Drive Zone

The park would use a multi-faceted approach to reduction of impacts at popular areas such as Bumpass Hell and Lassen Peak by developing new trails to seldom-visited resources, *e.g.* Hot Springs Valley, using ranger-led programs to disperse and better manage use, and reducing the size of parking lots to reduce visitor crowding.

A major effort would be made to improve interpretation on the main road. More ranger-led interpretive programs would be conducted at major visitor attraction such as the Devastated Area, Bumpass Hell, and Sulphur Works. Non-personal services would be enhanced as well, to include an audio tape tour, milepost-keyed road guide, and organized information for use by bus tour organizations.

Pullouts on the main road would be reevaluated, redesigned, and relocated to achieve improved visitor experience including scenic views, interpretation, and availability of convenience facilities.

Parking and picnic facilities would be replaced at Reflection Lake.

Summer Developed Zone

Trailhead parking and information would be included at the southwest entrance to support a new trail to link Little Hot Springs Valley with Sulphur Works.

The historic naturalist residence at Manzanita Lake would be rehabilitated to provide space for interpretive staff to provide education programs year around for a variety of users, including school groups.

Interpretive programs and services would be initiated at Lost Creek, Butte Lake, Juniper Lake, and Warner Valley. A primitive amphitheater at Lost Creek and a rehabilitated amphitheater at Butte Lake would support these programs. An addition to the ranger station at Butte Lake would provide interpreter housing.

At Kings Creek, the picnic area would be expanded to provide bus parking and areas suitable for group use.

Environmentally approved dust suppressants would be employed on campground roads at Butte Lake, Juniper Lake, and Warner Valley.

Winter Developed Zone

Increased educational and interpretive programs and services would be provided at the southwest entrance.

At the northwest entrance, the road would be plowed as far as the camper store, allowing the concession operation to provide limited food service and rental of skis and snowshoes. A facility would also be provided in this area to accommodate winter environmental education groups.

Administration Zone

As staff is added to implement this alternative, additional employee housing may be required. Specific housing needs will be addressed at that time following National Park Service housing policy.

Estimated Costs

The costs discussed below consist of rough estimates of one-time and recurring expenditures needed to achieve the goals of the alternative. The estimates are sufficiently accurate to allow for comparison between alternatives but are not appropriate for use in developing budgets or seeking appropriations.

One-time project costs for this alternative, including detailed planning and information-collection projects as well as construction projects, are estimated at approximately \$73.6 million. All of the projects required in Alternative B are included. Additional projects required for this alternative are marked with an asterisk (*) in the table below.

Construction project estimates include, in addition to actual construction costs, required predesign natural and cultural resource analysis, design, and an allowance for contingencies. The costs are summarized below. The highest funding priorities would be accorded to remediation of environmental

intrusions in backcountry and developed areas and natural and cultural resource management activities, since those activities are urgently needed to preserve critical park resources. High priority would also be accorded to development of a visitor service facility at the southwest entrance, where visitor orientation is currently minimal and urgently needed, and to remediation of safety deficiencies at various parking lots on the main road.

Table 4: Estimated Costs for Alternative C

Project Category	Estimated Total Cost
Remediate Backcountry Environmental Intrusions	\$ 1,680,000
<i>Major Projects:</i>	
Remove Redundant Trails	
Revegetate Disturbed Areas	
Bumpass Hell Trail Improvements	
Lassen Peak Trail Realignment	
Remediate Developed Area Environmental Intrusions	\$6,480,000
<i>Major Projects:</i>	
Underground Utility Lines	
Improve “Graywater” Management	
Restore Disturbed Lands	
Remove Obsolete/Excess Structures	
Relocate Facilities from Wetlands & Riparian Areas	
* Reduce Parking Lot Sizes	
* Expand/Relocate Manzanita Dump Station	
Natural Resource Management	\$6,360,000
<i>Major Projects:</i>	
Obtain Baseline Data	
Exotic Species Research & Control	
Design Monitoring Program	
Stock Carrying Capacity Analysis	
* Reintroduce Fisher & Wolverine	
* Accelerate Exotic Species Control	
Cultural Resource Management	\$4,225,000
<i>Major Projects:</i>	
Obtain Baseline Data	
Rehab Historic Structures	
Construct Collection Storage Facility	
Developed Area Planning	\$725,000
<i>Major Projects:</i>	
Comprehensive Trail Plan	
Parkwide Design Standards for Structures & Landscapes	
Site Plans for All Major Developed Areas	

Project Category	Estimated Total Cost
Visitor Facility/Orientation Improvements <i>Major Projects:</i> Southwest Visitor Service Facility Redesign/Reconstruct Bumpass Hell parking Upgrade safety at Major Parking Lots Upgrade Toilets on Main Road Relocate/Upgrade Main Road Pullouts Construct Summit Lake & Butte Lake Horse Corrals Improve Boat Launch at Manzanita & Juniper Lake New Picnic Area at Manzanita Lake Improve Trails at Manzanita Lake Improve Water & Sanitation at Manzanita lake CG Improve Water & Sanitation at Warner Valley CG * Traveler Information System * Winterize Facilities * Interpretive Media * New Trails * Relocate & Redesign Pullouts on Main Road * Picnic Area at Reflection Lake * Amphitheaters at Lost Creek & Butte Lake	\$16,350,000
Circulation Improvements <i>Major Projects:</i> Repair Main Road Structural Deficiencies Improve Traffic Controls & Signs Snow Removal Equipment & Storage Improve Drakesbad Roads & Parking * Harden Warner Valley Road	\$16,140,000
Administrative Facility Improvements <i>Major Projects:</i> New Headquarters Admin & Maintenance Facilities Upgrade Headquarters Utilities Upgrade/Modernize Manzanita Lake Facilities * Butte Lake Interpreter Housing * Winterize Manzanita Lake Maintenance Area	\$21,610,000
Total Estimated One-Time Costs	\$73,570,000

Total operation costs would increase compared to Alternative B, with a total of \$7.7 million, and FTE would increase to about 137. These changes reflect primarily the increased visitor interpretation/education included in this alternative, as well as maintenance support requirements.

Map 12. Winter Zoning—Alternative C

Map 13. Restoration and Development Projects—Alternative C

ALTERNATIVE D: RESOURCE PROTECTION AND EXPANDED VISITOR OPPORTUNITIES

Vision

Lassen Volcanic National Park is a model for ecosystem management, wilderness preservation, and cultural resource protection for the benefit of present and future generations.

Resource conditions are known and basic trends of natural systems have been assessed. Scientifically sound mechanisms are in place to ensure that natural systems and processes are perpetuated. Cultural resources and their significance are documented and appropriate preservation standards are applied. All stakeholders play an active stewardship role.

A diversity of visitors are provided year-around opportunities for education, enjoyment, and understanding which inspire appreciation of resource values and dedication to stewardship. Wilderness visitors experience a landscape largely devoid of human impacts.

Expanded facilities and winter access allow further increases in numbers of visitors to enjoy appropriate year-around-recreational opportunities consistent with protection of park resources.

Concept

This alternative includes all of the resource protection and visitor enhancing features of Alternative C. It differs in the increased scale of visitor facilities at several existing areas and increased operations to improve access in the winter.

Management Prescriptions By Zone

Summer zoning would be largely the same as in Alternative B, although the summer developed zone would be increased by a few acres to accommodate expanded campgrounds in several locations. Winter zoning would include an expanded Winter Developed Zone to include the park road between Manzanita Lake and the Devastated Area. See Map 14. The acreages of the park in each of the zones is shown in the table below:

Table 5: Park Acreage for Alternative D

Zone	Acres
Summer:	
Wilderness	104,569.34
Scenic Drive	1,192.00
Summer Developed	271.00
Remote Unit Access Road	334.00
Administration	80.00
Inholder	5.66
Winter:	
Winter Wilderness & Backcountry	105,854.00
Winter Developed	518.00

Needed or Allowable Changes

These actions are all in addition to those included in Alternative C. See Map 15, Restoration and Development Projects. Some zones, *e.g.* Wilderness and Backcountry, will not have incremental actions in this alternative. Those zones that are affected are discussed below.

Summer Developed Zone

The Lost Creek group campground would be combined with the Craggs area to provide a significantly expanded group campground with approximately 15 sites.

At Manzanita Lake, the campground would be expanded by adding another 20-40 site loop.

The Butte Lake campground would be expanded by 20-40 sites, requiring some upgrading to the utilities. To support the greater maintenance needs, the ranger station would be expanded to provide quarters for one maintenance person.

The relocated Juniper Lake campground would be expanded by approximately 10 sites.

In the Warner Valley, the campground would be expanded by approximately 10 sites, and a new picnic area of approximately 10-15 sites would be developed.

Winter Developed Zone

At the northwest entrance, the Loomis Museum would be kept open in winter months to provide interpretive information and the road would be plowed an additional 9 miles to the Devastated Area, providing excellent opportunities for winter users to access the backcountry at a variety of locations and enjoy uncrowded winter wilderness experiences.

At Manzanita Lake, one loop of the campground would be cleared for winter camping.

Estimated Costs

The costs discussed below consist of rough estimates of one-time and recurring expenditures needed to achieve the goals of the alternative. The estimates are sufficiently accurate to allow for comparison between alternatives but are not appropriate for use in developing budgets or seeking appropriations.

One-time project costs for this alternative, including detailed planning and information-collection projects as well as construction projects, are estimated at approximately \$74.6 million. All of the projects required in Alternatives B and C are included. Additional projects required for this alternative are marked with an asterisk (*) in the table below.

Construction project estimates include, in addition to actual construction costs, required predesign natural and cultural resource analysis, design, and an allowance for contingencies. The costs are summarized below. The highest funding priorities would be accorded to remediation of environmental intrusions in backcountry and developed areas and natural and cultural resource management activities, since those activities are urgently needed to preserve critical park resources. High priority would also be accorded to development of a visitor service facility at the southwest entrance, where visitor orientation is currently minimal and urgently needed, and to remediation of safety deficiencies at various parking lots on the main road.

Table 6: Estimated Costs for Alternative D

Project Category	Estimated Total Cost
Remediate Backcountry Environmental Intrusions	\$ 1,680,000
<i>Major Projects:</i>	
Remove Redundant Trails	
Revegetate Disturbed Areas	
Bumpass Hell Trail Improvements	
Lassen Peak Trail Realignment	
Remediate Developed Area Environmental Intrusions	\$6,480,000
<i>Major Projects:</i>	
Underground Utility Lines	
Improve “Graywater” Management	
Restore Disturbed Lands	
Remove Obsolete/Excess Structures	
Relocate Facilities from Wetlands & Riparian Areas	
Reduce Parking Lot Sizes	
Expand/Relocate Manzanita Dump Station	
Natural Resource Management	\$6,360,000
<i>Major Projects:</i>	
Obtain Baseline Data	
Exotic Species Research & Control	
Design Monitoring Program	
Stock Carrying Capacity Analysis	
Reintroduce Fisher & Wolverine	
Accelerate Exotic Species Control	
Cultural Resource Management	\$4,225,000
<i>Major Projects:</i>	
Obtain Baseline Data	
Rehab Historic Structures	
Construct Collection Storage Facility	
Developed Area Planning	\$725,000
<i>Major Projects:</i>	
Comprehensive Trail Plan	
Parkwide Design Standards for Structures & Landscapes	
Site Plans for All Major Developed Areas	
Visitor Facility/Orientation Improvements	\$17,260,000
<i>Major Projects:</i>	
Southwest Visitor Service Facility	
Redesign/Reconstruct Bumpass Hell parking	
Upgrade safety at Major Parking Lots	
Upgrade Toilets on Main Road	

Project Category	Estimated Total Cost
Relocate/Upgrade Main Road Pullouts	
Construct Summit Lake & Butte Lake Horse Corrals	
Improve Boat Launch at Manzanita & Juniper Lake	
New Picnic Area at Manzanita Lake	
Improve Trails at Manzanita Lake	
Improve Water & Sanitation at Manzanita lake CG	
Improve Water & Sanitation at Warner Valley CG	
Traveler Information System	
Winterize Facilities	
Interpretive Media	
New Trails	
Relocate & Redesign Pullouts on Main Road	
Picnic Area at Reflection Lake	
Amphitheaters at Lost Creek & Butte Lake	
* Kings Creek Bus Parking and Group Picnic	
* Crag/Lost Creek Expanded Group Camp	
* Manzanita Lake Camp Area Expansion	
* Butte Lake Camp Area Expansion	
* Juniper Lake Camp Area Expansion	
* Warner Valley Camp Area Expansion	
* Warner Valley Picnic Area	
Circulation Improvements	\$16,140,000
<i>Major Projects:</i>	
Repair Main Road Structural Deficiencies	
Improve Traffic Controls & Signs	
Snow Removal Equipment & Storage	
Improve Drakesbad Roads & Parking	
Harden Warner Valley Road	
Administrative Facility Improvements	\$21,680,000
New Headquarters Admin & Maintenance Facilities	
Upgrade Headquarters Utilities	
Upgrade/Modernize Manzanita Lake Facilities	
Butte Lake Interpreter Housing	
Winterize Manzanita Lake Maintenance Area	
* Butte Lake Maintenance Housing	
Total Estimated One-Time Costs	\$74,550,000

Operation costs would increase to \$7.9 million and FTE would total 141, with increases primarily attributable to increased protection and maintenance of the added facilities.

Map 14: Winter Zoning—Alternative D

Map 15: Restoration and Development Projects—Alternative D

ALTERNATIVES CONSIDERED BUT REJECTED

A number of scoping comments suggested elimination of horse use in the park, primarily because of the perception that equestrian use is contributing to trail congestion, interfering with pedestrian uses, and creating maintenance problems. While it is recognized that equestrian use has created some problems in the park, and it is clear that equestrian use is not appropriate on all park trails, it is believed that this type of use can be appropriately managed and opportunities for equestrian use can continue to be a valued recreation activity at the park. The various action alternatives call for analysis of equestrian uses and prescription of management actions to reduce impacts.

Some commenters also suggested that the park efforts to begin snow removal operations on the main park road in the spring could be reduced or eliminated altogether. While such an approach might save money in the short run, public access to the park would be significantly reduced in many years. There is also concern about the structural integrity of the roadbed if snow and ice were allowed to collect over an extended period of time. A highly variable season would also greatly complicate recruiting of seasonal employees and provision of quality visitor services. Overall, the planning team concluded that the public benefits of the normal spring snow clearing efforts far outweigh the costs incurred.

Proposals for development of new roads to access backcountry areas were considered but rejected based on potential for environmental impact. Proposals for reconsideration of the previous decision regarding the Manzanita Lake dam were also rejected because this issue has been adequately considered and there is no new data on which to base a reevaluation.

Finally, several comments were received suggesting replacement of the downhill ski area, reestablishment of fish stocking programs, and allowing snowmobiling. All of these proposals are precluded by established servicewide policy.

Table 7: Comparison of Alternatives

ALTERNATIVES COMPARISON				
	ALTERNATIVE A: NO ACTION	ALTERNATIVE B: RESOURCE PRESERVATION & BASIC VISITOR SERVICE	ALTERNATIVE C: RESOURCE PROTECTION AND ENHANCED VISITOR EXPERIENCE	ALTERNATIVE D: RESOURCE PROTECTION AND EXPANDED VISITOR OPPORTUNITIES
FACTOR ENVIRONMENTAL RESOURCES:				
Wildlife & Vegetation	Resources continue to decline due to lack of information to guide scientific management and lack of staffing to address resource management needs such as exotic species control and accelerated fire programs and manage visitor use impacts. Poorly designed and located trails and developed areas spill over use impacts into adjacent areas.	Biological inventories and research provide scientific basis for protecting wildlife and vegetation resources. Increased staffing for control of exotic species and reducing impacts from illegal recreation and commercial activities. Measures undertaken to reduce damaging concentrated visitor use on lakeshores and lands adjacent to popular trail routes. Disturbed land rehabilitated and revegetated to restore habitat value.	Same as Alternative B.	Same as Alternative B, except approximately 15-25 acres will be developed for visitor facilities.
Water Resources	Concentrated visitor use on lakeshores and lack of facilities to manage "graywater" in developed areas results in some local pollution.	Better management of visitor use on lakeshores and development of "graywater" facilities will reduce pollution potential.	Same as Alternative B.	Same as Alternative B.

Comparison of Alternatives

FACTOR	ALTERNATIVE A: NO ACTION	ALTERNATIVE B: RESOURCE PRESERVATION & BASIC VISITOR SERVICE	ALTERNATIVE C: RESOURCE PROTECTION AND ENHANCED VISITOR EXPERIENCE	ALTERNATIVE D: RESOURCE PROTECTION AND EXPANDED VISITOR OPPORTUNITIES
Geologic & Soil Resources	Erosion continues to occur from braided and overused trail routes and unreclaimed abandoned development sites.	Abandoned sites and braided trails revegetated, visitor use managed to reduce crowding and off-trail travel, and stock use more closely regulated.	Same as Alternative B.	Same as Alternative B.
Air Resources	The park continues to be affected by air pollution generated in the upper Sacramento Valley and to have insufficient staff to effectively participate in regional land use planning efforts with potential for reducing or minimizing the further degradation of air quality.	Staff capability to participate in regional land use planning and regulation increased to ensure park values considered.	Similar to Alternative B, with minor reduction of particulates due to dust suppression on roads to remote units.	Same as Alternative C.
Wilderness	Size of designated wilderness unchanged. Wilderness quality is adversely affected by impacts to several environmental factors, including vegetation, wildlife, soils, and air and water quality.	Designated wilderness increased by approximately 25,000 acres. Wilderness quality improved by addressing wide range of natural resource management problems.	Same as Alternative B.	Same as Alternative B.

Comparison of Alternatives

FACTOR	ALTERNATIVE A: NO ACTION	ALTERNATIVE B: RESOURCE PRESERVATION & BASIC VISITOR SERVICE	ALTERNATIVE C: RESOURCE PROTECTION AND ENHANCED VISITOR EXPERIENCE	ALTERNATIVE D: RESOURCE PROTECTION AND EXPANDED VISITOR OPPORTUNITIES
Scenic Resources	Unreclaimed abandoned development sites, overhead utility lines, sign clutter, lack of landscaping, and canopy of structural design detract from scenic quality in developed areas.	Restoration of previously developed areas, elimination of sign clutter, and parkwide design guidelines improve scenic quality in developed areas. Visual quality at Southwest entrance improved by new structure and landscaping.	Same as Alternative B.	Similar to Alternative B, except minor additions to developed area of park will have minor adverse impacts.
Cultural Resources	Cultural resource inventories and significance analyses remain incomplete. Backcountry historic structures continue to decline in absence of adequate maintenance. Park collections remain uncataloged and stored in below-standard conditions.	Cultural resource inventories completed. Maintenance of backcountry historic structures brought to standard. All park construction projects preceded by complete inventories and compliance with NHPA requirements.	Same as Alternative B.	Same as Alternative B.
VISITOR ACCESS AND EXPERIENCE: Facility Capacity	Camp areas continue to operate near capacity on summer weekends and holidays..	Similar to Alternative A, but picnic area added in part of abandoned campground at Manzanita Lake.	Similar to Alternative B except picnic area replaced at Reflection Lake and group picnic areas provided at Kings Creek.	Overnight capacity augmented by addition of up to 100 new family camp units and up to 8 new group camp sites. Also new picnic area at Warner Valley.

Comparison of Alternatives

FACTOR	ALTERNATIVE A: NO ACTION	ALTERNATIVE B: RESOURCE PRESERVATION & BASIC VISITOR SERVICE	ALTERNATIVE C: RESOURCE PROTECTION AND ENHANCED VISITOR EXPERIENCE	ALTERNATIVE D: RESOURCE PROTECTION AND EXPANDED VISITOR OPPORTUNITIES
Seasonal Availability	Park operated primarily to serve summer users. Few facilities usable in colder months and few services available despite growing demands for winter and shoulder season use.	Same as Alternative A.	Facilities winterized to allow use in winter and shoulder seasons. Increased snow clearing at Manzanita Lake to allow operation of concession services at camper store.	Similar to Alternative C with additional road clearing at north entrance to allow moto vehicle access as far east as the Devastated Area. Also, clearing of one camp loop at Manzanita Lake for winter camping.
Interpretive Services	Orientation for arriving visitors very limited, especially at Southwest entrance where most new users enter. Very limited interpretive services parkwide, with none in outlying areas.	Similar to existing situation in much of park. However, much improved orientation and interpretation of basic park themes at Southwest entrance due to new visitor services facility.	Interpretive services expanded to include additional programs parkwide and extension of services to outlying areas. Traveler Information System initiated.	Same as Alternative C.
HEALTH & SAFETY:	Some public use facilities, e.g. boardwalks without handrails continue to be hazardous to visitors. Pedestrian hazards continue on main road at some major interpretive sites and in Manzanita Lake area.	Boardwalk safety deficiencies repaired. Pedestrian safety concerns on main park road and at Manzanita Lake addressed.	Same as Alternative B.	Same as Alternative B.

Comparison of Alternatives

FACTOR	ALTERNATIVE A: NO ACTION	ALTERNATIVE B: RESOURCE PRESERVATION & BASIC VISITOR SERVICE	ALTERNATIVE C: RESOURCE PROTECTION AND ENHANCED VISITOR EXPERIENCE	ALTERNATIVE D: RESOURCE PROTECTION AND EXPANDED VISITOR OPPORTUNITIES
MANAGEMENT EFFICIENCY:	Administration continues to be hampered by inadequate space, inappropriate location of facilities, and unreliable utilities. South District Office located at headquarters in Mineral, far from main workload at Southwest entrance. Insufficient housing for seasonal employees and volunteers causes recruitment problems. Budget inadequacy precludes timely maintenance and pro-active planning and analysis.	New structures and upgraded utilities at headquarters provide for enhanced operational efficiency. South District Ranger offices located at Southwest entrance to provide ranger and interpretive services at point of need. Housing increased to facilitate seasonal recruitment.	Same as Alternative B.	Same as Alternative B.
LOCAL ECONOMY:	Short season and modest numbers of visitors at Lassen limit contributions of park to local economy.	Improved facility at Southwest entrance leads to increased visitation. Increased park operating budget adds to local spending.	Some visitation increases in winter and shoulder season should increase spending in local communities.	Similar to Alternative C with expected greater visitation in summer period as well. Modest increased spending expected in local communities.
COSTS:				
Capital Costs	0	\$ 68.2 million	\$ 73.6 million	\$ 74.6 million
Annual Operating Costs	\$3,100,000	\$6,700,000	\$7,600,000	\$7,700,000
Staffing (FTE)	70	125	139	142

THE AFFECTED ENVIRONMENT

VEGETATION AND WILDLIFE

Vegetation

As a result of the park being located near the junction of two great mountain ranges, the Cascades and the Sierra Nevada, and intersecting with the Great Basin, there is an overlap of floral species commonly specific to one of the provinces. The diversity of geologic formations and chemical and textural compositions of lava have resulted in a wide diversity of plants in these communities and many anomalies to the altitudinal life zones.

Four major plant communities are found within the park: yellow pine forest, red fir forest, subalpine forest and alpine fell fields. These correspond roughly to the four life zones: Transition, Canadian, Hudsonian, and Arctic-alpine.

The yellow pine forest, found at elevations below 6,000 feet, typically consists of sugar pine, Jeffrey pine, white fir, and incense cedar. The widespread red fir forests at elevations between 6,000 and 8,500 feet consist of lodgepole pine, Jeffrey pine, western white pine, red fir and mountain hemlock. The subalpine forest, at the upper limit of the coniferous forest, is characterized by the whitebark pine, a highly weather-resistant plant that grows at elevations as high as 10,000 feet.

Above timberline are the alpine meadows and fell fields. During the summer, these meadows are filled with colorful wildflowers.

Brushland covers approximately ten percent of the park, consisting primarily of greenleaf manzanita, pinemat manzanita, and snowbrush ceanothus. Other common shrubs are currant, gooseberry, serviceberry, bitter cherry, and California chinquapin. Willow and alder line the stream courses, and aspen is common in moist places at lower elevations.

Much of the park is rocky, exposed, and relatively devoid of forest vegetation. Volcanic eruptions of Lassen Peak in 1914 to 1915 destroyed over 7 square miles of forestland. The successional process of reforestation is now taking place, with herbs, shrubs, and finally trees taking root in the coarse soil. The first trees to survive are lodgepole pines, which will eventually give way to the other pines and firs.

Plant communities within Lassen Volcanic National Park have been significantly altered by human activities including the grazing of horses, sheep, and cattle, the treatment of insect-infected trees, and the suppression of virtually every wildfire for almost 90 years.

In many impacted areas of the park it is nearly impossible for vegetation to become re-established on its own. Compacted soil and erosion have combined to remove the soils and make it necessary for the park to implement restoration and revegetation programs to restore damaged areas to their natural condition.

Wildlife

The highly variable vegetation and terrain of Lassen support a number of wildlife communities. Mammals such as rabbits, marmots, martens, and skunks are abundant. Beavers are expanding into park streams on the southern boundaries that are shared with Lassen National Forest and private ranches, and into the Hat Creek drainage in the northern part of the park. Foxes, mountain lions, bobcats, and coyotes inhabit the park, but are rarely sighted. Bears are seen quite frequently. Blacktail deer are abundant during summer months, migrating to lower elevations during winter months. Both wolverines and

fishers have previously been observed in the park, but neither has been reported recently, although wolverines have been seen just south of the park.

Approximately 270 native species of terrestrial and aquatic vertebrates have been recorded in the Lassen area, including 56 mammals, 190 birds, and 18 amphibians and reptiles. The park lacks basic data on the distribution and abundance of most wildlife species and the impacts of human activities on the park's native wildlife communities.

One federally-listed threatened species is known to occur in Lassen Volcanic National Park, the southern bald eagle. A single pair of bald eagles nest near Snag Lake. Hunting territory for this pair comprises most of the eastern half of the park. The only other known bald eagle activity is seasonal foraging use of the Manzanita Lake area by eagles believed to nest at McCumber Reservoir. Breeding activity of bald eagles is monitored by park staff, as part of a statewide program, to determine if nesting territories are being occupied and to determine nesting success. Management actions are adjusted as necessary to prevent disturbance of nesting and hunting eagles.

One previously listed species occurs, the American peregrine falcon. Current peregrine falcon activity in the park is limited to occasional hunting in the higher elevations around Lassen Peak in late summer, apparently in response to an upward seasonal movement of prey species. Successful peregrine falcon nestings occurred in 1998 and 1999 in the lower Blue Lake Canyon, approximately 300 yards outside the park boundary.

Three park bird species, the willow flycatcher, the northern goshawk, and the California spotted owl, are currently under consideration for federal listing. One pair of spotted owls nest in the south central portion of the park near Terminal Geyser. The Forest Service monitors this nest annually for breeding and fledgling success. Spotted owls have also been reported near Snag Lake and in the Lost Creek area.

The great grey owl once occupied the Lassen area but is not thought to be present in the park. The only confirmed sighting of great grey owl occurred near Bumpass Hell Trail in 1956. In 1988, only ten breeding pairs of great grey owls were known, all of them in or near Yosemite National Park.

Serious declines and total extinctions of frogs and toads have been documented in the United States, Canada and many other Western Hemisphere countries. The decline seems to be most notable at high elevations and for species that are active during the day. At Lassen, preliminary surveys indicate that the range of the Cascades frog has decreased dramatically in recent years. Only two non-reproducing populations are known to exist in the park, near Crumbaugh and Juniper Lakes. More extensive surveys are needed to confirm the frog's status, as well as that of other amphibians which share life history traits with the Cascades frog.

Many of the lakes in the park are naturally barren. However, stocking of hatchery-reared rainbow and brown trout occurred at a number of water bodies in the park from its initial designation up until 1992, when all fish stocking in the park was terminated to conform to servicewide policy. Some of the lakes, which were stocked, now contain reproducing populations of trout. Manzanita Lake receives considerable fishing pressure during certain times of the year. It is managed as a "catch-and-release" fishery. The park will consider adopting "catch-and-release" fishery management for other lakes in the park as well.

WATER RESOURCES

The park contains portions of four drainage basins, all of which eventually drain into the Sacramento River except an area northeast of Lassen Peak that contains some closed basins. The headwaters of Mill

Creek are in the park. Mill Creek is notable because it has no dams blocking anadromous fish runs and is one of very few stream courses remaining in the central California mountains to have its biologic integrity preserved from its origin to the Pacific Ocean via the Sacramento River.

The park contains over 200 lakes and ponds and 15 perennial streams. Inventory data on aquatic life in these water bodies is very limited. Some lakes have been significantly modified by past programs of stocking non-native sport fish.

Water quality is monitored regularly in developed sites to ensure safe water supplies for human use. Periodic sampling and testing is also performed in park waters where existing sewage systems or human use levels are such that contamination might result and cause changes in the natural composition of such waters.

In 1997, a Sanitary Survey was completed in the park by San Jose State University in five watersheds, four within the park plus the Headquarters Martin Creek watershed. The surveys measured temperature, pH, turbidity, dissolved oxygen, coliform, giardia, cryptosporidium and flow rates. The park will be completing these surveys every five years with the goal of implementing a long-term monitoring program that addresses (1) the impact of visitation on water quality, and (2) the water quality at water intakes located in each watershed. This monitoring program will enable analysis of water quality changes over time as they relate to changes in activities and management practices implemented within the watershed.

Some of the natural drainage systems in the park have been altered. The most obvious of these are Manzanita and Reflection Lakes in the park's northwest corner, and Dream Lake in Warner Valley. Manzanita Lake was created from the Chaos Crags rockfall avalanche 300 years ago and was enlarged with a dam in 1911 for a small hydropower operation. Water was also diverted from Manzanita Creek to Reflection Lake, originally a closed basin lake, to provide water power and to improve fish production. Dream Lake was impounded as a recreational and scenic feature for the Drakesbad resort. Natural drainage patterns in Warner Valley were also altered by early ranchers to more evenly distribute water in the meadow for livestock grazing.

GEOLOGIC AND SOIL RESOURCES

Dramatic geologic history is the primary reason for designation of Lassen Volcanic National Park. The park provides an outstanding collection of volcanic features including composite volcanoes, shield volcanoes, plug domes, cinder cones, lava flows and geothermal areas. The well-documented eruptions of Lassen Peak from 1914 to 1917 and the extensive system of geothermal areas in the park illustrate the fact that volcanic activity remains a dynamic and potentially cataclysmic force in the Lassen region.

The park's geology is dominated by the Lassen volcanic center, the southernmost locus of volcanism in the Cascade Range. Over the past 600,000 years, volcanism at Lassen constructed a large composite cone and emplaced a dacite dome field on its northern flank. The composite cone, Mount Tehama, was active between 600,000 and 400,000 years ago. Hydrothermal alteration significantly weakened the structure of Mount Tehama, and it was deeply eroded by glaciers. Today, a ring of rugged peaks including Brokeoff Mountain, Mount Diller, Pilot Pinnacle, and Mount Conard encircle the eroded core of Mount Tehama. Starting about 400,000 years ago the locus of active volcanism shifted to the northern flank of Mount Tehama. More than 40 dacite domes and lava flows were extruded in 3 periods with the earliest around 400,000 years ago, a second period between 270,000 and 190,000 years ago, and the third beginning about 70,000 years ago. Explosive eruptions preceded or accompanied dome-building events and scattered thick layers of pumice and ash over the surrounding area.

Lassen Peak is one of the world's largest plug dome volcanoes and at 10,457 feet elevation, this 27,000-year-old feature dominates the park's skyline. Huge lava flows erupted from the cinder cones Hat Mountain, Crater Butte and Fairfield Peak built the park's Central Plateau and are also part of the latest stage of volcanism at the Lassen volcanic center.

Other features in the park, for example, the shield volcanoes Table Mountain, Prospect Peak, Mount Harkness, and Sifford Mountain are not part of the Lassen volcanic center but are more typical of volcanoes in the Cascades. Saddle Mountain, Pilot Mountain, and Mount Hoffman are remnants of the Dittmar volcanic center that was analogous to the Lassen volcanic center and dominated the park's landscape 2 million years ago, but today lies mostly eroded and buried by younger features.

The volcanic features in the park have been reshaped by glacial events during the Great Ice Age. The Central Plateau hosted an ice cap at least 1,000 feet thick and valley glaciers sculpted all the major valleys. Smaller glaciers persisted until about 8,000 years ago on Lassen Peak. A wide variety of features created by glacial erosion and deposition are found in the park.

The youngest major eruption in the Lassen volcanic center formed the Chaos Crags, a group of 6 dacite domes and related pyroclastic deposits between about 1,000 and 1,100 years ago. Collapse of one of these domes about 300 years ago in a series of 3 cold rockfall avalanches created the Chaos jumbles. The eruption of Cinder Cone about 350 years ago created the Painted Dunes, Fantastic Lava Beds and Snag Lake. Lassen Peak reawakened on May 30, 1914 and over the next year at least 180 steam-driven explosions blasted a new crater in the summit.

A small dacite lava dome filled the crater starting in mid-May 1915. On the evening of May 19, a large explosion destroyed the growing dome and triggered an avalanche of hot rock, snow and loose debris down the northeastern flank. A mudflow caused by melting snow quickly followed, and a short lava flow erupted from the reopened vent. The eruption climaxed 3 days later on May 22 when a vertically directed eruption column partially collapsed and a pyroclastic flow of hot gases, rock and debris swept down the northeast flank. Fall of hot rock on snow near the summit caused a number of small mudflows. Intermittent steam-driven explosions persisted until 1917.

A study completed by U.S. Geological Survey (USGS) geologists in 1970 raised considerable concern over the safety of public use facilities located at Manzanita Lake because they were considered to lie within the potential rockfall avalanche zone of the Chaos Crags. As a result of this study many of the facilities at Manzanita Lake were closed in the 1970's. A subsequent geologic analysis in 1987 reevaluated the avalanche hazard, and concluded that it was somewhat less threatening and extensive than indicated in 1970. Based on this reappraisal, some of the facilities were reopened and remain open today.

Seismic activity on Lassen Peak is monitored by the USGS since volcanic activity is typically preceded by earthquake activity. There is a net of nine seismometers located both inside and outside the park which provide a continuous record of seismic activity. The instruments are connected by radio and open telephone line to the USGS Earthquake Laboratory in Menlo Park, California and are monitored 24-hours a day. The purpose of continuous monitoring is early detection of volcanic activity and to learn more about earthquake and volcanic phenomena based on "background" levels of seismicity. The information provides the park staff with the means of preparing the most effective warning and evacuation plan in the event of renewed volcanic activity in the Lassen area.

The soils within Lassen Volcanic National Park are generally rocky, shallow, rapidly drained and strongly acidic. They are almost exclusively volcanic in origin. Depths vary from several feet in limited lower elevation meadows to thin or nonexistent on the higher elevations. The distribution of many

herbs, shrubs, and trees in the park and throughout the Cascade Range follows geologic formations and soil properties as much as climatic factors.

AIR QUALITY

Air quality related concerns at Lassen include visibility and vegetation.

Visibility refers to the clarity of the atmosphere and is typically measured as the distance one can see at a particular location and time. The absorption and scattering of light by both gasses and particles in the atmosphere restricts visibility. Natural factors that decrease visibility include fog, precipitation, blowing dust and snow, and relative humidities above 70 percent. Human activities that reduce visibility include the combustion of fossil fuels which transforms emissions into tiny visibility-reducing particles termed "aerosols", and soil disturbing activities that increase the air-borne particulates.

Air pollution in the Sacramento Valley is readily discernible on many days of the year from vistas in Lassen, reducing visibility and detracting from one of the park's primary visitor attractions.

Vegetation is considered an air quality related value because several plant species found at Lassen are known to be sensitive to air pollution. For example, in past years ozone concentrations have reached sufficiently high levels to cause chlorotic mottling on yellow pines in the Manzanita Lake area.

The Clean Air Act (CAA) established the Prevention of Significant Deterioration program to preserve, protect, and enhance air quality in regions which are of special national or regional natural, recreational, scenic, or historic value. Under these provisions Congress instituted a classification approach for controlling the increase of air pollution based on existing air condition. Class I areas are afforded the greatest degree of air quality protection against industrial growth. Class II areas allow for moderate deterioration, associated with well managed growth. Class III areas allow the greatest amount of deterioration. Lassen Volcanic National Park is designated as a Class I air quality area by virtue of its national park status.

CAA requires the U.S. Environmental Protection Agency to identify national ambient air quality standards (NAAQS) to protect public health and welfare. NAAQS have been set for six pollutants; particulate matter less than 10 microns (PM_{10}), carbon monoxide, nitrogen oxides, sulphur dioxide, ozone, and lead. These pollutants are called "criteria" pollutants, because the standards satisfy criteria specified in the CAA. An area where NAAQS are exceeded more than three times in three years can be considered a "non-attainment area" subject to planning and pollution control requirements that are more stringent than areas which meet the NAAQS. Air quality at Lassen has historically been in attainment with the NAAQS.

CULTURAL RESOURCES

Lassen Volcanic National Park contains cultural resources that are diverse and reflect a history of human activity extending at least 4,000 years into prehistory.

Prehistory

In general the high elevation of much of the park precluded year round occupation by prehistoric populations. Nevertheless, park lands were important for hunting game and gathering vegetal foods in the subsistence round of local indigenous groups.

Three different peoples, the Maidu, Yana/Yahi, and Atsugewi, were using portions of the park at the time of historic contact with Euro-Americans. Spiritual attachment to Lassen Peak by these local indigenous people is reflected in myths and legends. However, little is known about specific traditional cultural resources that may exist in the park.

Archeological sites are distributed throughout the park, from elevations of 5,500 feet to 7,000 feet. These cultural resources include a large village, lithic workshops and numerous smaller seasonal camps. Many, because of their seasonal, high elevation nature, have limited deposits. To date, approximately five percent of the park has been surveyed for archeological resources and 48 archeological sites have been recorded, ten of which are listed on the National Register of Historic Places as the Sulphur Creek Archeological District.

History

The Nobles Emigrant Trail, one of many routes that comprised the California Trail, was established in the mid-19th century, and was traversed in the westward migration of early settlers. (The California Trail, including multiple routes and branches, has been designated by Congress as a National Historic Trail.) A portion of this trail crosses the north end of the park. Early Euro-American settlements were established in the park at Drakesbad in the Warner Valley, where the first sheep herding in the region occurred, and where an early resort was established.

Historic Structures

The park's historic structures relate to several themes. The Nobles Emigrant Trail represents the exploration and settlement period. It exists today as a distinct trace through the park, along which some artifacts and campsites are found. It is entered on the National Register of Historic Places at a regional level of significance. The Drakesbad Guest Ranch, located in the Warner Valley, represents early resort hotels and spas. Fire lookouts represent early Forest Service wildfire protection. The headquarters complex represents early national park administration, rustic architecture, and the New Deal. The Manzanita Lake complex displays outstanding examples of rustic park architecture and adjunct educational institutions with the Loomis Museum.

Several of the structures are on the National Register, five more have been declared eligible and several more are likely eligible. The Loomis Museum and Seismograph Vault are on the National Register as a locally significant structure. Built by B. F. Loomis between 1925-27 as a memorial to his only daughter, it provided the first opportunity for visitors to learn more about the geology of the area and to see pictures of the 1914-1915 eruptions taken by Loomis. The structure, closed for several years, has been reopened and restored to its historical use.

The Prospect Peak Fire Lookout is considered of regional significance as one of the oldest surviving Forest Service fire lookouts (c. 1912) in the nation. In the fall of 1981 it was moved from Prospect Peak to Manzanita Lake for repair and rehabilitation. The Mt. Harkness Fire Lookout has been nominated; after several years of disuse it was rehabilitated in 1988 and has been occupied in the summers since then.

Three ranger stations have also been placed on the Register as having local significance in historic architecture. The Summit Lake Station is also one of the first National Park Service buildings to be erected in the park and was completely rehabilitated in 1980. All are used to house personnel during summer periods.

Some of the buildings in the administrative complex were constructed by the CCC. The Administration building, built in 1929, was entered on the National Register in 1979. The entire complex of 26 buildings has been nominated for inclusion on the National Register as a historic district.

Cultural Landscapes

Preliminary steps have been taken in the evaluation of cultural landscapes in the park but much remains to be done. Nine potential cultural landscapes have been identified, including Manzanita Lake/Reflection Lake area, Drakesbad, Mineral Headquarters Historic District, Loomis Museum area, Summit Lake Ranger Station/Campground, Warner Valley Ranger Station/Campground, Butte Lake Campground, NPS Route 1 (main park road), and CCC Trails and associated features. These potential landscapes in some cases include one or more component landscapes and features. As evaluations are completed over the next several years, nominations will be made as appropriate for listing on the National Register of Historic Places.

Collections

A total of 2975 objects have been cataloged in the park collection, of which 17 are archeological, 804 are biological, 495 are geological, 1304 are historical, 314 are ethnographic, and 5 are archival. An additional 16,194 items await cataloging, including 125 archeological, 3 ethnographic, 451 historical, 14,401 archival, and 1,214 biological. Acquisitions have increased during recent years due to changing guidelines, evaluation of government records for inclusion, and increased research contributions.

A unique part of the park collection is glass plate negatives of the 1915 eruptive sequence, as well as movie film of that event. Photo-documentation of the eruption was significant in the establishment of Lassen Volcanic National Park. At the time of the eruptions, geologists became residents in the Lassen area and produced numerous publications about the Lassen geology.

Current storage facilities are inadequate in size and do not meet standards for security and atmospheric controls.

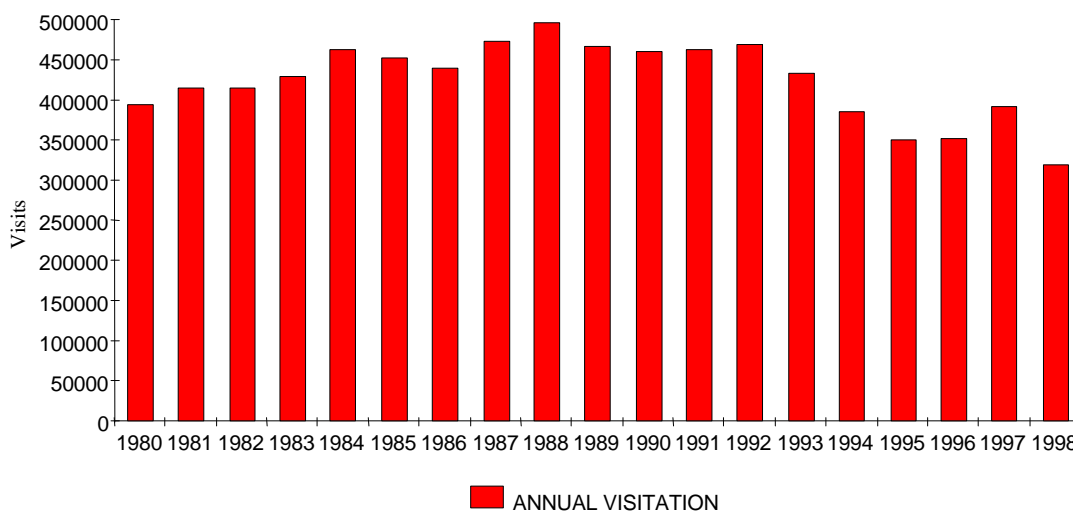
Ethnographic Resources

When Euro-Americans first arrived in the area, Lassen Peak marked the point where the boundaries of three Indian territories met. These peoples included the Maidu, the Atsugewi or Hat Creek people, and the Yana/Yahi. Organized groups of Maidu and Atsugewi are currently located to the southeast and north of the park. There are no organized groups of Yana/Yahi. Although there is a fair amount of written ethnographic data for these Native American groups, little information about the groups' contemporary use of the park resources has been obtained. Similarly, the significance of park resources to the local Native American communities is not known.

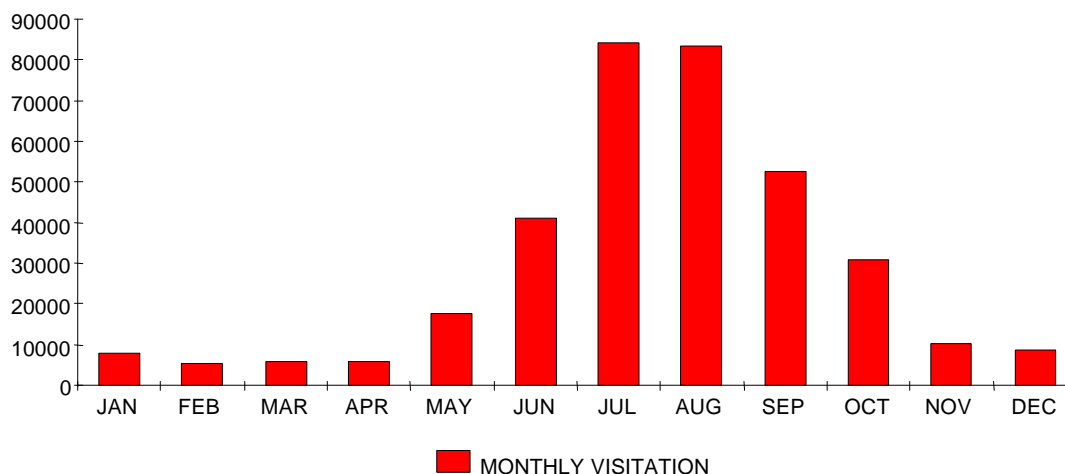
VISITOR USE AND EXPERIENCE

Current & Past Visitor Use Levels

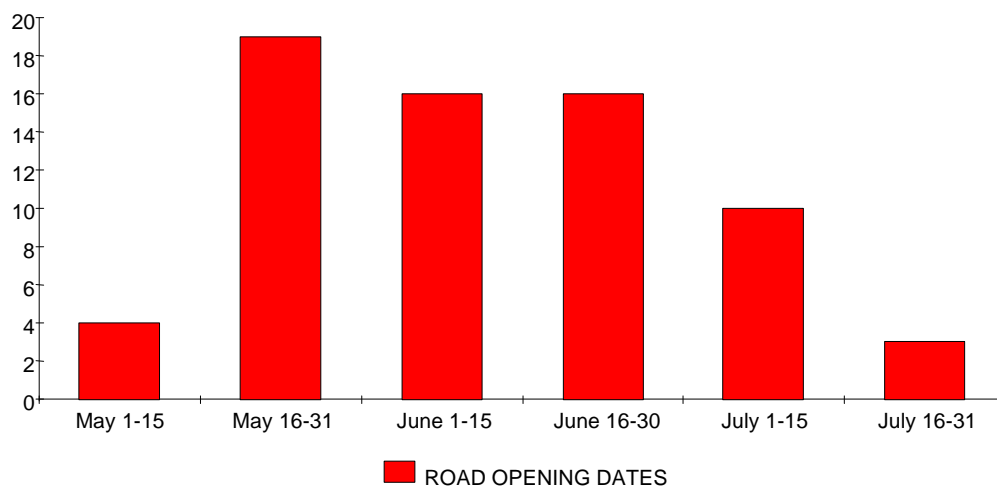
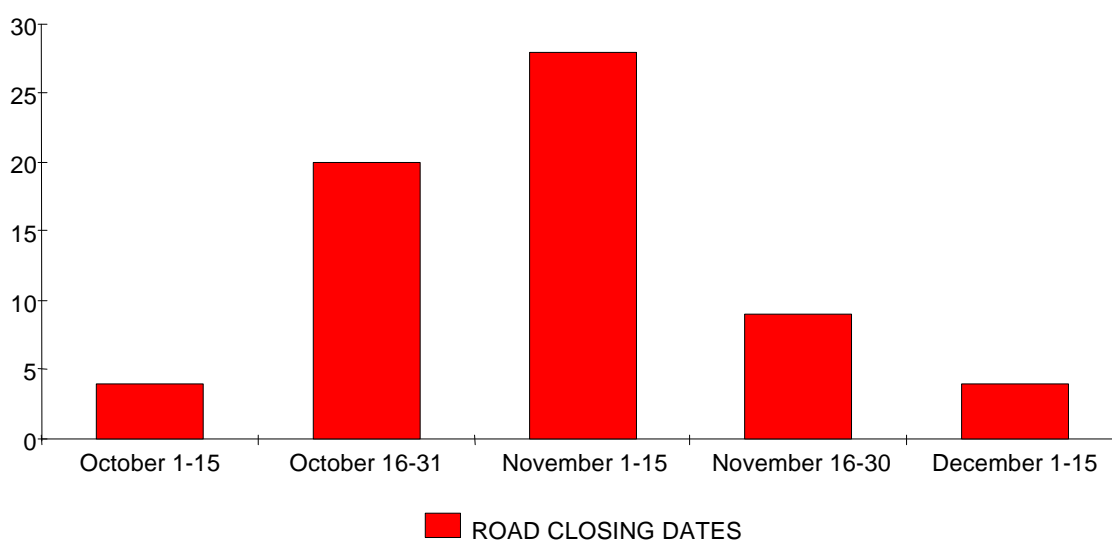
The graph below shows annual visitation for the last two decades. Overall, annual use levels have been quite stable over the period, with differences caused mainly by variation in weather conditions.

Figure 1. Annual Visitation 1980-1999

Visitation at Lassen is highly seasonal, as shown in the monthly visitation graph, Figure 2. While some use of the park occurs year around by cross-country skiers and snow shoers, significant visitation levels do not occur until the main road can be opened. July and August are the peak visitation months, accounting for nearly half of the annual visitation in 1999. The four-month period June-September accounted for nearly 80% of the annual visitation for that year.

Figure 2. Monthly Visitation, 1999

The length of the visitor season can vary substantially, depending on snow conditions. The graphs below, Figures 3 and 4, show the opening and closing dates for the main road over the period 1931-1998.

Figure 3. Main Road Opening Dates**Figure 4. Main Road Closing Dates**

The great preponderance of park visitation occurs along the main park road, where are found most of the park's recreation facilities and most of the interpretive displays. The road also provides ready access to a number of backcountry destinations. Entry to the park is more or less evenly divided between the Manzanita Lake area and the Southwest entrance, though a slightly higher proportion enter at the southwest entrance. Entries at Manzanita Lake are highly concentrated on summer weekends, reflecting heavy weekend use by Redding area residents. In contrast, entries at the Southwest entrance reveal significant weekday use, suggesting longer duration trips from areas outside the immediate region.

There are three outlying developed areas, not connected to the main road. These are Butte Lake, located in the northeast corner of the park and accessible via a gravel road from Rte. 44, Juniper Lake, located in the southeast corner of the park, and the Warner Valley, located in the south central part of the park. Warner Valley and Juniper Lake are accessed by gravel roads running north from the town of Chester. All three of these remote areas have campgrounds and offer opportunities for day use and backcountry access. In addition, the concession-operated Drakesbad Guest Ranch in Warner Valley provides rustic overnight accommodations and various recreation opportunities for its guests. Together these three areas provide about 5% of the overall park visitation. They are generally accessible only during summer months.

Projected Visitor Use Levels

Projecting visitor use levels into future years is always problematical because many factors can influence future visitation trends including market area population, tastes and preferences, ease and cost of access, income, the availability of alternatives, exchange rates (for foreign visitors) and publicity.

Changes in many of these factors cannot be projected with any reliability. However, the origin of Lassen's visitors, *i.e.* its market area, is roughly known and this provides the basis for some rough projections.

The State of California supplies about 80 percent of the visitors to Lassen Volcanic National Park. The statewide population is projected by the Department of Finance to grow at an average rate of approximately 1.8 percent per year during the 15-year life of the general management plan. The park's four-county economic region-Lassen, Plumas, Shasta, and Tehama Counties-is expected to grow at about the same rate overall, though much of the increase will be in the Redding area is Shasta County.

The balance of visitation at Lassen Volcanic National Park comes from throughout the United States, 15 percent of the total, and from foreign countries. While overall U.S. population rates may be somewhat slower than California, increased foreign trade and travel suggests that foreign travel to the U.S. may increase at somewhat more rapid rates in future years. Overall it is reasonable to conclude that the market area will increase by 25-30 percent over the next 15 years and potential visitation will increase from the current average of 353,000 visits/year (1995-1999) to an average of 440,000 to 460,000 visits/year by 2015. Most of this potential visitation can reasonably be accommodated with existing facilities, though park facility capacity would limit certain types of use, such as camping, on peak weekends and holidays.

Visitor Experience

A substantial proportion of Lassen's visitors, approximately 25%, stay overnight in the park, most at developed campgrounds. Lassen provides a total of 375 individual sites and 9 group campgrounds. The resort facilities of the Drakesbad Guest Ranch also provide overnight stays. In 1999, the park recorded 64,677 stays at park campgrounds and 5,649 stays at concessioner lodging at Drakesbad.

Backcountry use in the park is substantial, with most of the use concentrated in summer months but with some winter ski or snowshoe use occurring. Most backcountry visitors travel by foot; however there is some use of stock on the trails, with 146 horses recorded in 1999. Approximately 2% of the visitors stayed overnight in the backcountry/wilderness.

Winter use remains a minor but growing component of visitation at Lassen. Winter visitors enter the park at both Manzanita Lake and the Southwest entrance and continue on into the park. In 1999, approximately 10% of the visitation occurred in winter months.

The park's Wilderness and Backcountry Management Plan guides efforts to preserve the park's wilderness and provide quality experience to the visitor. These objectives are accomplished by controlling use through a variety of restrictions, party size and length of stay limitations, and closure to overnight use of some heavily impacted or fragile areas, interpreting use, and enforcing regulations. Unfortunately, backcountry/wilderness use, particularly overnight use, is causing damage to resources at many sites. Loss of vegetation, soil compaction, and increasing sediment loads in water bodies are some impacts of this use. Visitor use tends to be concentrated at lake and stream sites, with the most attractive sites receiving the heaviest use and most resource damage.

In an effort to protect the vegetation and prevent further deterioration, limitations have been placed on stock use and wilderness permits are required for overnight stays in the backcountry/wilderness. Permits provide data on the size of the party, destinations, dates of stay, entry and exit locations and where people are visiting from. Due to the lack of funding, however, monitoring of use levels and documentation and enforcement of backcountry/wilderness violations occurs only sporadically. Backcountry monitoring personnel collect data on areas of bare soil, trampled vegetation, illegal campsite and fire ring location, permit compliance and accuracy, trail erosion, coliform bacteria, and chemical parameters of backcountry lakes and streams. Fire rings and illegal campsites are eradicated whenever possible and reports filed on backcountry violations.

The park's interpretive program provides visitors with opportunities to learn about park phenomena. The program includes handout materials, wayside exhibits, interpretive programs, and roving interpreters. In addition, a museum with interpretive displays is available at Manzanita Lake. The major themes addressed in the interpretive program reflect the basic legislative purpose and significance of the park. It is considered highly desirable that all park visitors be presented with information on this subject matter. The primary themes emphasized at Lassen are:

Geologic events and processes actively and continually shape our Earth.

All life on Earth functions within a web of interdependency.

Lassen is at a biological crossroads with influences of the Sierra Nevada, Cascades and Basin and Range physiographic provinces.

Evidence of human use and occupation beginning with ancient Native Americans and continuing through periods of pioneer exploration and settlement provide Lassen with a rich cultural heritage.

The biotic integrity of the area makes Lassen an area valuable for researching natural systems and processes.

Lassen provides access to wilderness and its values.

Lassen as part of the National Park System.

The following table provides perspective on the scale of facilities operated and maintained by the park.

Table 8: Park Facilities

Roads and Trails	
Paved Roads	42 miles
Unpaved Roads	15 miles
Paved Parking Lots	13 lots/665 spaces
Paved Pullouts	50
Road Signs	314
Road Bridges	5
Trails	146 miles
Trail Signs	198
Trail Bridges	15
Paved Walks	1.5 miles
Geothermal Area Boardwalks	2000 lineal feet
Buildings and Facilities (Non-historic)	
Housing	42 units
Public Buildings	24
Administrative Buildings	5
Picnic Areas	7 (100 sites)
Campgrounds	8 (485 sites)
Group Campgrounds	2 (15 sites)
Campground Signs	577
Boundary Fencing	6.5 miles
Buildings and Facilities (Historic)	
Housing	13 units
Public Buildings	10
Administrative Buildings	25
Other Historic Features	9
Utility Systems	
Water Treatment Plants	9
Water Distribution Lines	90,000 lineal feet
Wastewater Treatment Facilities	9
Wastewater Collection Lines	47,000 lineal feet
Primary Electrical Distribution Systems	3
Primary Electrical Line	20,000 lineal feet
Radio Systems	2
Computer Networks	2
Telephone Systems (Local Server)	2

Many of the historic structures at Lassen are in active use either for their original intended function or in some adaptive use.

CONCESSION FACILITIES

There are concession facilities at three locations in the park. The Manzanita Lake camper store provides ice, curios, snack bar, limited groceries, beer, wine, hot and cold drinks, gasoline, showers and laundry, and camping supplies. Its normal season of operation is from late May to early October.

The Lassen Chalet, located at the southwest entrance, provides beer, wine, snack bar, and gifts. It also operates from late May until early October.

Drakesbad Guest Ranch, located at the end of the road in Warner Valley, provides lodging and recreation opportunities such as horseback riding and swimming for guests during the summer from early June until early October.

LOCAL ECONOMY

Lassen Volcanic National Park includes portions of four California counties—Lassen, Plumas, Shasta, and Tehama. These four counties are discussed below as the local economic region for the park.

Current population in the 4-county area is approximately 290,000. California Department of Finance projects that population of the area will grow to approximately 343,000 in 2010 and 393,000 in 2020. Local population growth is important to the park because a substantial proportion of the park's visitation originates in the 4-county area.

The local economy is quite diversified as indicated in the Economic Profile table. All data are from California Department of Finance publications and refer to conditions in 1996.

Economic activity in the immediate vicinity of the park, *e.g.* Mineral and Chester, is heavily dominated by retail trade and services, with many establishments providing goods and services for visitors to the park and the many other recreational attractions in the area. Lassen National Forest, for example, provides extensive year-around opportunities for activities such as camping, fishing, hunting, hiking, and in winter months, snowmobiling and cross country skiing. Lake Almanor is a popular destination for fishing and various boating activities.

The park contributes to the local economy through its operating budget and through the expenditures of park visitors. The park's total operating budget in Fiscal Year 1999 was \$3.1 million. This figure includes both employee salaries and expenditures for various goods and services. In 1999 the park had a full time equivalent staff of 67 persons. Virtually all of the park employees live within the economic region and spend substantial portions of their salaries on locally provided goods and services. Also, the park procures many of the goods and services required for its operations in the local area.

The visitors to the park affect the local economy through their purchases of various goods and services. In 1999, there were over 350,000 visitors to the park, most of whom likely made purchases locally. Expenditures are generally higher for overnight visitors than for day use visitors. The park recorded approximately 85,000 overnight stays in 1999.

Table 9: Economic Profile
Lassen Volcanic National Park Economic Region
(1996 Data)

	Lassen County	Plumas County	Shasta County	Tehama County	Total
Land Area-Acres	2916790	1634540	2422820	1888670	8862820
Population	32650	20250	161700	54400	269000
Per-Capita Income	\$16,058	\$19,844	\$19,558	\$15,154	NA
Median Years School	12.9	13	13	12.7	NA
% College Grads	11.7	15.1	13.7	10.2	NA
Non-Agricultural Wage & Salary Employment:	9430	6850	53900	12800	82980
Construction/Mining	330	260	3300	370	4260
Manufacturing	520	850	4500	2580	8450
Transportation/Utility	300	610	3600	400	4910
Trade	1690	1540	14300	3310	20840
Finance	190	250	1700	550	2690
Services	1260	1150	16300	2700	21410
Federal Government	1150	430	1200	250	3030
State/Local Govt.	4000	1760	9000	2650	17410
Agriculture					
Number of Farms	312	125	844	1381	2662
Farm Acres	487499	119514	388084	1016851	2011948
Ag. Employment	300	30	1100	1510	2940

ENVIRONMENTAL CONSEQUENCES OF THE PROPOSAL AND ALTERNATIVES

METHODOLOGY FOR ANALYZING CONSEQUENCES

The following definitions, standards, and guidelines were used in completing this section:

Context: considers the impact in a local, regional, or national context.

Intensity:

Negligible—impact is at the lower level of detection; no discernible effect

Minor—impact is slight, but detectable; impacts present, but not expected to have an overall effect

Moderate—impact is readily apparent; clearly detectable and could have appreciable effect

Major—impact is severely adverse or exceptionally beneficial; substantial, highly noticeable influence

Duration:

Short term—temporary; transitional impacts

Long term—permanent effect

Direct—impacts occurring at same time and in same place as the action

Indirect—impacts occurring later and a further distance from the action

Cumulative Impacts: The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions (regardless of what agency, whether federal or non-federal, or person undertakes such other actions). These impacts can result from individually minor but collectively significant actions taking place over a period of time.

FUTURE COMPLIANCE AT IMPLEMENTATION STAGE

The general management plan primarily provides a vision of the future and does not include a great deal of detail on how to achieve that vision. A number of action plans and development designs will be prepared subsequently to implement the GMP and provide more specific guidance on how to achieve the vision. Plans will be completed for various park programs, *e.g.* natural and cultural resource management, interpretation, land protection, and fire management. Site plans and designs will be completed for proposed development. All of these plans will reflect the management direction and the vision articulated in the approved GMP. In most cases, these implementation plans and designs will include additional public review and environmental compliance at a more detailed level. The impacts of

all construction projects and various other park programs/projects to be implemented under the approved general management plan (*e.g.*, natural resource management, interpretation, land protection, fire management, etc.), will also be considered in subsequent implementing plans in order to comply with Section 106 of the NHPA and the implementing regulations set forth at 36 CFR Part 800.

ALTERNATIVE A: NO ACTION

Wildlife & Vegetation

Analysis

The lack of adequate inventory and monitoring data means that the extent of encroachment of non-native wild species of plants and animals is not completely known, risks cannot be assessed, and effective action cannot be taken. Anecdotal information on the subject does not, however, suggest major impending threats to the park from exotic species.

Domestic animals also currently have some adverse impacts on vegetation and wildlife. Cattle trespassing from adjacent national forest allotments consume vegetation, import the seeds of non-native plants, and trample areas. Dogs also are not always properly restrained by visitors and may harass wildlife. Overall these impacts are considered minor.

Vegetation and related habitat values are diminished by trampling in areas of concentrated visitor use, especially at several heavily used backcountry/wilderness lakes and along popular trails, and where equestrian use is concentrated. There is potential for damage to rare and unique micro-habitats on Lassen Peak, and possibly also to micro-habitats in geothermal areas and fragile lakeshores and riparian areas. These impacts are the result primarily of poorly designed and located facilities and the absence of adequate staffing levels for enforcement and visitor education.

Heavy, unnatural fuel loads occur throughout much of the park as a result of a long period of wildfire suppression. These fuel loads are indicative of a significantly disrupted natural system, and include a substantial portion of the park. This situation has a significant impact on vegetation and likely has a related impact on wildlife in the park.

A number of developed sites in the park are located in wetlands or riparian zones, e.g. Warner Valley trailhead parking and Juniper Lake campground. These areas are biodiverse and known to have particularly high value as wildlife habitat.

Cumulative Impacts

Impacts on vegetation and wildlife have been cumulative over the years. Visitor-based impacts will increase as use increases. While a change in fire policy in recent years has made some very modest inroads on the accumulation of unnatural fuel loads in the park, the program is too limited in scope to improve conditions in a significant proportion of the park. .

Conclusions

There will be major adverse impacts on vegetation and wildlife from this alternative.

Water Resources

Analysis

Concentrated visitor use on backcountry lakeshores is leading to some degree of water pollution from human waste and spillage of various chemicals.

Cumulative Impacts

Because Lassen is at the top of the watershed, there are no external incremental contributing sources of pollution to water bodies within the park. Levels of pollution in waters flowing out of the park are negligible, and would not contribute to cumulative impacts on water bodies outside the park.

Conclusions

Overall, water resources impacts are localized and minor in intensity.

Geologic & Soil Resources

Analysis

The primary adverse impacts are compaction and erosion, resulting from concentrated use on trails and lakeshores, and the existence of a number of abandoned development sites where soils have been disturbed and revegetation has not been undertaken. From a parkwide standpoint the amount of area affected is not substantial, and the resource impacts are relatively minor.

Cumulative Impacts

Impacted areas have increased over time from park development activities and from visitor activities.

Conclusions

The impacts from soil erosion are minor, localized, and have few implications for resource protection, *i.e.* erosion is not significantly affecting water bodies or vegetation. Overall impacts in this category are minor.

Air Quality

Analysis

Although NAAQ Standards for all pollutants are met and exceeded in the park, air quality impacts do occur in the park. Visibility of distant vistas is reduced by pollution, particularly looking west toward the Sacramento Valley. Monitoring has also linked chlorotic mottling on a portion of the park's yellow pine to elevated ozone levels. These impacts are primarily the result of activities occurring many miles away in the Sacramento Valley, although some minor contributions are inevitably made by hydrocarbon emissions from local vehicle traffic.

Cumulative Impacts

Regional pollution is the primary source of pollution with local sources providing a minor increment. Population and economic activity in the upper Sacramento Valley continue to grow and can be expected to increase the potential for park-damaging air pollution in future years.

Conclusions

Air quality impacts in the park are currently minor but could become more significant in future years.

Wilderness

Analysis

Existing designated wilderness at Lassen totals 78,982 acres. In addition, much of the remaining area of the park is managed essentially as wilderness.

Wilderness quality is compromised by any human-caused disruptions to natural conditions and values, including solitude, vegetation, wildlife, soils, water, and air resources. The impacts to these resources at Lassen are discussed above under the relevant categories. Wilderness in essence represents a broader resource that encompasses these various resource categories. As discussed above, significant impacts are localized but are occurring to some of the constituent resources, affecting wilderness value.

Cumulative Impacts

The cumulative effect on wilderness value is minor.

Conclusion

Impacts to wilderness values are minor.

Scenic Resources

Analysis

There are a number of abandoned development sites at Lassen which have long been awaiting restoration and revegetation. Most of these areas are out of sight of most visitors but some, e.g. the deactivated ski area at the SW entrance, are readily apparent to large numbers of visitors. In addition, overhead utility lines, a general sign clutter on the main road, a lack of landscaping in developed areas, and a lack of design standards for park structures, detract from the scenic qualities of the park.

Cumulative Impacts

The adverse scenic impacts at Lassen are generally localized, and are in developed areas where some visual disruption of nature is expected and scenic values are not of overriding significance.

Conclusions

Views from primary scenic viewpoints, e.g. from pullouts on the main road and from the peaks, continue to be unimpaired and provide a high quality visitor experience. Hence adverse scenic resource impacts at Lassen from this no action alternative are considered minor.

Cultural Resources

Analysis

The extent of cultural resources at Lassen is not completely known. Archeological surveys for the park are incomplete, ethnographic studies and consultations have been initiated but not completed, and cultural landscape evaluations have yet to be completed. In the absence of this information it is impossible for the park to take steps to preserve and protect the resources or interpret them for the visitors. It is possible that important resources are being lost but it is impossible to know to what extent.

Historic structures in front country areas, especially those currently in use, are generally well maintained. Structures in backcountry/wilderness areas, where maintenance can only be performed sporadically, are in generally poor and declining condition as a result of weathering and lack of routine maintenance.

Only about 15% of the park's substantial museum collection has been cataloged, there is insufficient space for its storage, and the space which is available does not meet standards for security, temperature, and humidity. The consequences are that some objects are presumed to be undergoing deterioration, and all are subject to various risks.

Cumulative Impacts

Historic fabric is being adversely impacted on a recurring basis and will eventually result in loss of resources.

Conclusions

Impacts to cultural resources at Lassen are major.

Visitor Access & Experience

Analysis

Visitor access and experience in the park are adversely affected by the lack of adequate and timely orientation information, by obsolete, substandard, and nonexistent facilities in high visitor use areas, by inadequately maintained roads and trails, and by the lack of a coherent and conveniently administered interpretive program to allow visitors to fully understand and enjoy park resources. In terms of context, these deficiencies are all the more important because Lassen offers the public a unique set of resources and there are not equivalent experiential opportunities available in the region.

Cumulative Impacts

Over time, the year-by-year cutback in the resources available to the park for serving the public has resulted in the diminution of facilities and programs for visitors.

Conclusions

Deterioration of the range, lack of basic visitor facilities, and quality of visitor access and experience at Lassen is a major impact.

Health & Safety

Analysis

Some of the public use facilities, such as boardwalks in thermal areas, have been poorly designed, e.g. without handrails, and may be slippery in wet weather and difficult to negotiate in any kind of weather by elderly and disabled people.

Road hazards also exist in several locations. There are dangerous curves on both the Juniper Lake and Warner Valley roads, and pedestrians are at risk from vehicle traffic at several major interpretive sites on the main road. There is also serious congestion and potential for pedestrian/vehicle accidents in the vicinity of the Manzanita Lake camper store.

Cumulative Impacts

Both employees and visitors will continue to be exposed to unsafe and hazardous conditions.

Conclusions

Health and safety concerns at Lassen are major.

Management Efficiency

Analysis

Management efficiency at Lassen is seriously hampered by the lack of adequate administrative facilities. At headquarters, the inadequately sized administration building necessitates the dispersal of related functions and a general loss of opportunities for communication among divisions. Maintenance facilities in this location are also a problem, and unreliable and inefficient utilities in this area are a disruption to effective functioning. Maintenance facilities at Manzanita Lake are inefficiently designed and configured. Utilities are obsolete and hazardous.

The lack of facilities for the South District Ranger office at the Southwest entrance, where much of the ranger activity occurs, is a major inefficiency. This area also is hampered by poorly designed facilities, e.g. the Chalet and the main parking lot, the lack of maintenance storage for snow-clearing equipment, and the inadequate entrance station.

The lack of housing for seasonal employees and cooperators increases the difficulty of recruiting the best-qualified and most productive employees and obtaining the assistance of volunteers to further contribute to achieving the park goals.

Finally, the overall budget inadequacies preclude timely, money-saving maintenance, and further mean the absence of pro-active planning, data collection, and analysis which could otherwise contribute to effective park functioning.

Cumulative Impacts

Operating inefficiencies have been magnified over time as aging facilities have degenerated, requiring excessive maintenance commitments, and facilities have not been modernized and expanded to meet current needs.

Conclusions

The lack of adequate administrative and maintenance facilities and utilities and the lack of an adequate budget for preventive maintenance and management planning present major barriers to achieving the park mission.

Local Economy

Analysis

The relatively limited season of use at Lassen and the year-to-year uncertainty as to when the park will open and close tend to limit the amount of investment that can reasonably be made in facilities to serve park visitors outside the park.

Cumulative Impacts

None

Conclusions

The impacts of the park on the local economy are considered moderate.

Relationship Between Short-Term Uses And Long-Term Productivity

The situation at Lassen, similar to that at many units of the National Park System, involves sacrificing long-term well-being for short-term savings. In the business world it would be considered a case of "milking the assets". This is not the fault of managers at either the park level or the Service level, but rather reflects a willingness of the current national decision-making establishment to deplete the man-made assets such as roads, utilities, and recreational facilities which were created by previous generations, and to deplete and diminish the heritage assets which would otherwise pass on to future generations. There are several significant implications of this management approach:

1. Failure to provide for timely cyclic maintenance of key facilities means that annual maintenance costs will continually rise and that many facilities will need to be completely replaced prior to the end of their normal useful life.
2. Failure to protect park cultural and natural resources result in a park with declining heritage value. Historic phenomena once gone cannot be replaced and disruption of the natural systems may also prove irreversible.
3. Failure to make use of the park as an educational institution through interpretive programs and services means that opportunities to educate and inform the public are foregone.

Irreversible/Irretrievable Commitments of Resources

As discussed above, the current level of maintenance, resource management, and protection at the park are such that irreversible losses will definitely occur to cultural resources, and will likely occur to biological phenomena such as micro-habitats in inadequately protected areas.

Adverse Impacts That Cannot Be Avoided

Unavoidable impacts include the loss of cultural and natural resources discussed above. In addition, because of the safety deficiencies that exist in the park, there is a potential for injury and/or loss of life to visitors and employees.

ALTERNATIVE B: RESOURCE PRESERVATION AND BASIC VISITOR SERVICE

Wildlife and Vegetation

Analysis

Actions undertaken in this alternative will be in large part environmentally remedial, serving to reduce or eliminate current sources of adverse impact and reverse damage done by past actions. For example, research, inventory, and monitoring will provide the staff with a more informed basis for managing for preservation. The reintroduction of fire into the natural system will be accelerated, visitor and visitor facility impacts on sensitive and critical riparian and wetland areas and identified micro-habitats will be significantly reduced, and efforts to control exotic species and reduce domestic animal impacts will be augmented. The plan includes proposals for revegetation of a number of sites, and the completion of site plans for developed recreation areas to reduce spillover impacts in adjacent areas.

Most of the ground-disturbing projects included in this alternative will be undertaken in previously disturbed areas. In some cases facilities will be relocated from known sensitive areas, such as wetlands, to less critical nearby areas. All facility relocation sites will be surveyed prior to construction for Threatened and Endangered plants and critical wildlife habitat.

Cumulative Impacts

None

Conclusions

This alternative will have long-term and direct major beneficial impacts on wildlife and vegetation.

Water Resources

Analysis

This alternative will be primarily remedial with respect to water resources. Action will be taken to reduce visitor concentrations on lakeshores, which result in water contamination. In addition, "graywater" management facilities will be added in a number of recreation sites, decreasing the potential for discharge of polluted water to streams. There are no actions in the alternative that are expected to contribute to water pollution or significantly change levels of water use.

Cumulative Impacts

None

Conclusions

This alternative will have long-term moderate beneficial impacts on water resources.

Geologic & Soil Resources

Analysis

A number of actions will be taken to reduce soil erosion in the park. A number of abandoned development sites will be recontoured and revegetated, visitor use concentrations on lakeshores will be reduced, currently braided trail routes will be redesigned and reconstructed to provide a single non-

eroding tread, stock use will be more closely controlled, and visitor use at Lassen Peak will be more closely controlled to reduce trail braiding and erosion from off-trail hiking.

Cumulative Impacts

None

Conclusions

This alternative will have long-term moderate beneficial impacts on soil resources. It will not affect larger scale geological resources.

Air Quality

Analysis

Increased staffing in resources management will increase the park's capability to participate effectively in regional regulatory activities and contribute to reduction of future potential air quality impacts. The magnitude of this effect is impossible to assess, however.

Construction projects in the park will have very limited potential for temporarily increasing particulates from ground-disturbing activities and increasing polluting hydrocarbons from the exhausts of construction machinery. The reintroduction of fire will produce periodic and short-duration adverse impacts on air quality. Actions in this alternative are not expected to result in significant changes in visitation levels or patterns and hence hydrocarbon emissions from visitors' vehicles are not projected to increase.

Cumulative Impacts

None

Conclusions

The actions of this alternative will have long-term, moderate beneficial impacts on air quality.

Wilderness

Analysis

Designated wilderness in the park will be increased by approximately 25,000 acres, providing permanent protection against future development.

Wilderness values will be enhanced by reducing impacts to several natural resource categories, including vegetation, wildlife, soils, water, and air resources, as discussed in categories above.

Cumulative Impacts

Addressing the several constituent natural environment factors will cumulatively contribute to the quality of wilderness at Lassen. The designation of additional wilderness within the park will preclude future development within those areas.

Conclusion

This alternative will produce direct, long-term major beneficial impacts on wilderness at Lassen.

Scenic Resources

Analysis

The alternative includes provisions for restoration and revegetation of previously disturbed areas, providing for scenic improvement of several discrete areas. It also provides for adoption of parkwide guidelines for structures that combine sustainable design to achieve a common architectural theme and high visual quality for the built environment. While these guidelines will have little immediate impact because of the absence of extensive construction funding, over the long term these guidelines will have a beneficial effect as obsolete structures are replaced or rehabilitated.

The alternative includes a major new structure at the Southwest entrance, a visually prominent area seen by more than half the visitors to Lassen. The new structure will be a considerable improvement over the existing unsightly improvements in the area. The structure will be built with rustic characteristics and design and landscaping of the parking area will provide significant improvement over the existing sea of asphalt that confronts the arriving visitors. The new structure will be sited to avoid adverse impact on views.

Cumulative Impacts

None

Conclusions

Impacts on scenic resources at the Southwest entrance will have major beneficial impacts; on a parkwide basis the impacts will be moderately beneficial.

Cultural Resources

Analysis

The plan includes actions to complete inventory of cultural resources in the park and assessment of their significance pursuant to National Register eligibility. The plan also includes proposed funding of improved ongoing maintenance of backcountry historic structures, funds for development of a curatorial storage facility, and funds for rehabilitation of historic culverts on the scenic drive. Historic structures in the front country are already well maintained.

The impacts of all construction projects and various other park programs/projects to be implemented under this alternative (*e.g.*, natural resource management, interpretation, land protection, fire management, etc.), will be considered in subsequent implementing plans in order to comply with Section 106 of the NHPA and the implementing regulations set forth at 36 CFR Part 800.

Cumulative Impacts

Ongoing loss of historic fabric will be halted and resources stabilized.

Conclusions

The plan will provide direct, long-term major beneficial impacts on cultural resources.

Visitor Access & Experience

Analysis

The capacity of park facilities will be increased by this alternative, and a number of actions will be taken to improve visitor access and experience. Timely and complete orientation information and concession services will be provided in all seasons by the visitor service facility at the Southwest entrance, maintenance and marking of trails will be improved, roads to remote developed areas will be improved, toilets on the scenic drive will be upgraded, horse corrals will be improved and made available at several sites, and there will be improved accessibility for disabled persons.

Actions taken to reduce concentrations of visitors on the shores of wilderness lakes and to relocate facilities away from immediate lake and stream areas may detract from some visitors' enjoyment of the park.

Cumulative Impacts

Visitors will be better informed of park conditions, activities, and features and will be better served.

Conclusions

This alternative will have direct, long-term, major beneficial impacts on visitor access and experience.

Health & Safety

Analysis

Pedestrian/Auto conflicts are the most serious safety concern at the park. The alternative includes provisions for studying problem areas and adding safety features such as cautionary signing and crosswalks at some of the primary stopping points on the scenic drive. In addition, circulation at the Manzanita Lake area would be studied and action taken to lessen hazards at areas such as the camper store.

Cumulative Impacts

Employees and park visitors will have a safer park experience.

Conclusions

The alternative would provide major beneficial impacts on health and safety conditions at the park

Management Efficiency

Analysis

Actions included in the alternative related to management efficiency include development of new administrative and maintenance facilities and reliable supporting utilities in the headquarters area, relocation of the South District Ranger office to the new facility at the Southwest entrance, improvement of maintenance facilities at Manzanita Lake, addition of seasonal housing units to bolster recruitment of highly qualified workers, and the restoration of several houses in the headquarters area now used for administrative functions for use as employee housing.

Cumulative Impacts

None

Conclusions

Actions in the alternative will have direct, long-term, major beneficial impacts in the area of management efficiency.

Local Economy

Analysis

Actions taken in the alternative will have beneficial impacts on the amount of visitor use at the park, as operation of the new visitor services facility at the Southwest entrance is expected to encourage additional winter use, and possibly stimulate some increased spending in the Mineral and Chester areas. Also, the increased park budget will ensure additional expenditures locally for goods and services.

Cumulative Impacts

None

Conclusions

The alternative will have a moderate beneficial impact on local economies.

Relationship Between Short-Term Uses and Long-Term Productivity

This alternative places first priority on protection of park resources so they may be passed on to succeeding generations in an unimpaired state. In the short term this alternative requires a substantial increase in the use of the various factors of production but the long-term economic costs will likely be lower and the heritage assets of the park are preserved for succeeding generations.

Irreversible/Irretrievable Commitments Of Resources

While the passage of time and the presence of visitors will inevitably lead to some minor irreversible losses in non-reproducible heritage assets, the actions in this alternative include all reasonable and prudent steps to minimize such losses.

Adverse Impacts That Cannot Be Avoided

As discussed above, some deterioration of non-reproducible heritage assets is inevitable, but will be minimized.

ALTERNATIVE C: RESOURCE PROTECTION AND ENHANCED VISITOR SERVICE

Preferred Alternative

Wildlife & Vegetation

Analysis

In most respects this alternative will be similar to Alternative B. Some features of the plan have the potential for adverse impact on vegetation if not planned and executed with attention to environmental concerns. These include relocation of pullouts on the scenic drive for better views and interpretive opportunities, hardening and partial realignment of the road to Warner Valley, development of picnic facilities at Reflection Lake, and the development of a new trail in Hot Springs Valley. Planning of these development features will include consideration of environmental factors, including potential conflicts with Threatened and Endangered plant and animal species, consultation as needed with those with expertise, and the completion of appropriate NEPA documentation. If significant impacts appear likely, the projects will not be carried out.

Cumulative Impacts

None

Conclusions

Direct, long-term major beneficial impacts will accrue to wildlife and vegetation.

Water Resources

Same as Alternative B.

Geologic & Soil Resources

Analysis

This alternative will be very similar to Alternative B in that action will be taken to restore a number of previously disturbed sites and visitor use will be more closely managed to avoid resource impacts and soil erosion.

Some features of the plan have the potential for adverse impact on soils if not planned and executed with attention to environmental concerns. These include relocation of pullouts on the scenic drive for better views and interpretive opportunities, hardening and partial realignment of the road to Warner Valley, development of picnic facilities at Reflection Lake, and the development of a new trail in Hot Springs Valley. Planning of these development features will include consideration of environmental factors, consultation as needed with those with expertise, and the completion of appropriate NEPA documentation. If significant impacts appear likely, the projects will not be carried out.

Cumulative Impacts

None

Conclusions

Impacts on soils will be direct, long-term, major and beneficial.

Air Quality

Analysis

This alternative will be identical in most respects to Alternative B. Hardening the road to Warner Valley and use of dust suppressants on access roads to Butte Lake and Juniper Lake will slightly reduce airborne particulates. However, the alternative's somewhat greater construction efforts may temporarily increase particulates slightly.

Cumulative Impacts

None

Conclusions

Short term, minor adverse impacts from construction projects; long-term, major, beneficial impacts overall.

Wilderness

Same as Alternative B.

Scenic Resources

Short-term minor adverse impacts from Warner Valley Road realignment; improved pullouts will have long-term, moderate beneficial impacts.

Cultural Resources

Same as Alternative B.

Visitor Access & Experience

Analysis

Visitor access will be significantly improved in shoulder and winter seasons and winter environmental education programs will be provided. Relocation of pullouts on the scenic drive will enhance scenic experiences and opportunities for interpretation, picnic facilities at Reflection Lake will provide quality opportunities, and a new trail in Hot Springs Valley will give visitors another option for viewing geothermal phenomena.

Increased ranger-led programs parkwide, and initiation of such programs at the remote units will give visitors opportunities for increased depth of understanding about park resources. Also a Traveler Information System will help visitors to organize their visit and better understand any hazards that may confront them.

Cumulative Impacts

None

Conclusions

This alternative provides direct, long-term, major beneficial impacts on visitor access and enjoyment.

Health & Safety

This plan is very similar to Alternative B. It does offer some safety advantages in providing for realignment and hardening the road to Warner Valley, which currently has some inherently hazardous sections.

Management Efficiency

Same as Alternative B.

Local Economy

Analysis

The expected presence of more visitors in shoulder and winter seasons should have the effect of making more complete use of visitor serving facilities in the local area, providing better returns on capital and injecting additional spending into the local economy.

Cumulative Impacts

None

Conclusions

This alternative will produce indirect, long-term moderate beneficial impacts.

Relationship Between Short-Term Uses And Long-Term Productivity

Similar to Alternative B, but the additional efforts in interpretation and education represents an investment in the stewardship of visitors toward environmental resources.

Irreversible/Irretrievable Commitments Of Resources

Same as Alternative B.

Adverse Impacts That Cannot Be Avoided

Same as Alternative B.

ALTERNATIVE D: RESOURCE PROTECTION AND ENHANCED VISITOR EXPERIENCE

Wildlife & Vegetation

Analysis

This alternative is similar to Alternative C. The principal difference is the expansion of existing campgrounds at several locations. This development would result in the displacement of 15–25 acres of vegetation and wildlife habitat. Because these development projects are located in close proximity to existing recreation sites, and because they would in many cases occupy lands that have already been disturbed to some extent, wildlife impacts are expected to be minor. However, all of these projects would be subject to environmental review, including surveys for Threatened and Endangered species, and if significant wildlife and/or vegetation impacts should be projected, the projects would not be carried out.

Cumulative Impacts

The cumulative total of developed lands in the park would be slightly increased by these projects. The total area affected is minuscule compared to acreage in the park and does not have a significant impact on wildlife values.

Conclusion

This alternative would have major long-term beneficial impacts on wildlife and vegetation, although there would be some minor localized adverse impacts in expansion areas.

Water Resources

This alternative is similar in impact to Alternative C, although a very minor additional amount of water will be used for domestic purposes.

Geologic & Soil Resources

As discussed above under Wildlife & Vegetation, additional development will affect soils on 15–25 acres. Development will take care to protect soils from erosion during construction and design will be such to minimize erosion during subsequent operation.

Air Quality

There would be some minor short-term increases in particulates from construction, but in important respects this alternative is the same as Alternative C.

Wilderness

Same as Alternative C.

Scenic Resources

While the additional developed areas would detract somewhat from the park's natural appearance, the affected areas would be small, relatively inconspicuous, and designed to limit adverse impact on scenic views. It is essentially the same as Alternative C.

Cultural Resources

Same as Alternative C.

Visitor Access & Experience

Analysis

This alternative would increase the overnight capacity of the park by expanding several campgrounds and add to winter visitor access through increased snow clearing at the north park entrance.

While more visitors could be accommodated at one time, the increased capacity could lead to more crowding at key visitor areas, decreasing the quality of the experience for some visitors.

Cumulative Impacts

Even when combined with existing developments, a very small portion of the park would be developed and the overall character of a visit to Lassen should not change, i.e. the predominant experience would remain that of a natural landscape. However, the additional pressure on key visitor sites, such as Lassen Peak and Bumpass Hell, when combined with expected growing day use visitation, could decrease the quality of experience at those sites.

Conclusions

The alternative will have major beneficial impacts to visitor overnight capacity and winter access at the northwest entrance. It will have a long-term moderate adverse impact on visitor experience due to increased crowding throughout the park.

Health & Safety

Same as Alternative C.

Management Efficiency

Same as Alternative C.

Local Economy

Impacts on the local economy would be expected to be slightly greater than Alternative C because of the larger capacity of the area. However, this alternative is essentially the same as Alternative C.

Relationship Between Short-Term Uses And Long-Term Productivity

Same as Alternative C.

Irreversible/Irretrievable Commitments of Resources

Same as Alternative C.

Adverse Impacts That Cannot Be Avoided

Same as Alternative C.

CONSULTATION AND COORDINATION

SCOPING

Scoping for the general management plan was conducted from July 24, 1998 until September 30, 1998. Seven public scoping meetings were held at communities in the vicinity of the park, and one meeting was held for the park staff. Two scoping meetings were held with Lassen National Forest staff as well. A Notice of Intent was published in the Federal Register and notices of the meetings were broadly distributed to local and regional media and to known interested parties.

Some 120 persons attended the public scoping sessions and contributed comments and suggestions for consideration during the planning process. The park also received 49 letters of scoping comments.

REVIEW OF DRAFT GMP/EIS

Availability of the draft GMP/EIS will be announced formally in the Federal Register, both in the Environmental Protection Agency's routine weekly nationwide listing of environmental documents and in a specific Park Service notice. News releases will also be widely distributed to local and regional media.

Copies of the draft GMP/EIS will be sent to persons attending the scoping meetings or offering written comments. In addition, agencies and organizations known to have an interest in future management decisions for Lassen Volcanic National Park will receive copies.

Public meetings will be held in the vicinity of the park to answer questions about the document and to gather comments and suggestions.

PLANNING TEAM AND CONSULTANTS

Planning Team

Marilyn H. Parris, Superintendent, Lassen Volcanic National Park (LVNP)

Karen Haner, Chief, Interpretation and Cultural Resources Management, LVNP

Dan Jones, Chief, Maintenance, LVNP

Louise Johnson, Chief, Natural Resources Management, LVNP

Karen Stoll, Chief, Administration, LVNP

John Roth, Chief Ranger, LVNP

Meredith Kaplan, Landscape Architect/Planner, Pacific Great Basin Support Office (PGSO)

Lynne Nakata, Interpretive Specialist, PGSO

Dan Olson, Planner, PGSO

CONSULTANTS

Roger Kelly, Archeologist/Ethnographer, PGSO

Alan Schmierer, Environmental Specialist, PGSO

Ann King Smith, Archeologist, Redwood National Park

Eugene Fleming, Graphic Designer

APPENDIX: PROCLAMATION AND LEGISLATION

PROCLAMATION

THE LASSEN PEAK NATIONAL MONUMENT, CALIFORNIA
BY THE PRESIDENT OF THE UNITED STATES OF AMERICA
A PROCLAMATION

[No. 753—May 6, 1907—35 Stat. 2131]

WHEREAS, the elevation in the State of California, within the Lassen Peak National Forest, known as "Cinder Cone", and the adjacent area embracing a lava field and Snag Lake and Lake Bidwell, comprising chiefly public lands, are of great scientific interest, as illustrations of volcanic activity which are of special importance in tracing the history of the volcanic phenomena of that vicinity;

AND WHEREAS, it is provided by section two of the Act of Congress, approved June eighth, nineteen hundred and six, entitled, "An Act For the preservation of American antiquities," "That the President of the United States is hereby authorized, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and may reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected;"

NOW, THEREFORE, I, Theodore Roosevelt, President of the United States of America, by virtue of the power in me vested by section two of the aforesaid act of Congress, do proclaim that there are hereby reserved from appropriation and use of all kinds under all of the public land laws, subject to all prior valid adverse claims, and set apart as a National Monument, all the tracts of land, in the State of California, shown as the Cinder Cone National Monument on the diagram forming a part hereof.

The reservation made by this proclamation is not intended to prevent the use of the lands for forest purposes under the proclamation establishing the Lassen Peak National Forest, but so far as the two reservations are consistent they are equally effective. In all respects in which they may be inconsistent the National Monument hereby established shall be the dominant reservation.

Warning is hereby given to all unauthorized persons not to appropriate, injure or destroy any feature of this National Monument or to locate or settle upon any of the lands reserved by this proclamation.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this 6th day of May, in the year of our Lord one thousand nine hundred and seven, and of the Independence of the United States the one hundred and thirty-first.

THEODORE ROOSEVELT.

By the President:

ROBERT BACON,

Acting Secretary of State.

special importance in tracing the history of the volcanic phenomena of that vicinity,

AND WHEREAS, it is provided by section two of the Act of Congress, approved June eighth, nineteen hundred and six, entitled, "An Act For the preservation of American antiquities," "That the President of the United States is hereby authorized, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and may reserve as a part thereof parcels of land, the limits of

LASSEN PEAK NATIONAL MONUMENT **WITHIN LASSEN PEAK NATIONAL FOREST** **CALIFORNIA** **1907**

MT. DIABLO MERIDIAN AND BASE
FOREST SERVICE, U. S. DEPT. OF AGRICULTURE
— NATIONAL MONUMENT BOUNDARY

R. 4 E.

T.31 N.

6	5	4	3	2	1
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31	32	33	34	35	36

[DIAGRAM FORMING A PART OF PROCLAMATION
DATED MAY 6, 1907.]

which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected;"

NOW, THEREFORE, I, Theodore Roosevelt, President of the United States of America, by virtue of the power in me vested by section two of the aforesaid act of Congress, do proclaim that there are hereby reserved from appropriation and use of all kinds under all of the public land laws, subject to all prior valid adverse claims, and set apart as a National Monument, all the tracts of land, in the State of California, shown as the Lassen Peak National Monument on the diagram forming a part hereof.

The reservation made by this proclamation is not intended to prevent the use of the lands for forest purposes under the proclamation establishing the Lassen Peak National Forest, but so far as the two reservations are consistent they are equally effective. In all respects in which they may be inconsistent the National Monument hereby established shall be the dominant reservation.

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IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this 6th day of May, in the year of our

Lord one thousand nine hundred and seven, and of the Independence of the United States the one hundred and thirty-first.

THEODORE ROOSEVELT.

By the President:

ROBERT BACON,

Acting Secretary of State.

LEGISLATION

Lassen Volcanic National Park, Calif. Established.	<p>An Act To establish the Lassen Volcanic National Park in the Sierra Nevada Mountains in the State of California, and for other purposes, approved August 9, 1916 (39 Stat. 442)</p>
Description.	<p><i>Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,</i> That all those certain tracts, pieces, or parcels of land lying and being situate in the State of California and within the boundaries particularly described as follows, to wit: Beginning at the northeast corner of section three, township thirty-one, range six east, Mount Diablo meridian, California; thence southerly to the southeast corner of said section; thence easterly to the northeast corner of the northwest quarter of section eleven, said township; thence southerly to the southeast corner of the southwest quarter of section fourteen, said township; thence easterly to the northeast corner of the northwest quarter of section twenty-four, said township; thence southerly to the southeast corner of the southwest quarter of section twenty-five, said township; thence westerly to the southwest corner of section twenty-six,</p>

said township; thence southerly to the southeast corner of section thirty-four, said township; thence westerly along the sixth standard parallel north, allowing for the proper offsets, to the northeast corner of section three, township thirty north, range six east; thence southerly to the southeast corner of section twenty-seven, said township; thence westerly to the southwest corner of the southeast quarter of section twenty-eight, said township; thence northerly to the northwest corner of the southeast quarter of said section; thence westerly to the southwest corner of the northwest quarter of said section; thence northerly to the northwest corner of said section; thence westerly to the southwest corner of the southeast quarter of section twenty, said township; thence northerly to the northwest corner of the southeast quarter of said section; thence westerly to the range line between ranges five and six east; thence southerly along said range line to the southeast corner of township thirty north, range five east; thence westerly along the township line between townships twenty-nine and thirty north to the southwest corner of section thirty-three, township thirty north, range five east; thence northerly to the northwest corner of said section; thence westerly to the southwest corner of the southeast quarter of section twenty-nine, said township; thence northerly to the northwest corner of the southeast quarter of said section; thence westerly to the southwest corner of the northwest quarter of said section; thence northerly to the northwest corner of said section; thence westerly to the southwest corner of the southeast quarter of section twenty, township thirty north, range four east; thence northerly to the northwest corner of the southeast quarter of section eight, said township; thence easterly to the northeast corner of the southwest quarter of section nine, said township; thence northerly to the township line between townships thirty and thirty-one north; thence easterly along the sixth standard parallel north, allowing for the proper offsets, to the southwest corner of section thirty-three, township thirty-one north, range four east; thence northerly to the northwest corner of section twenty-one, said township; thence easterly to the range line between ranges four and five east; thence northerly along said range line to the northwest corner of fractional section eighteen, township thirty-one north, range five east; thence easterly to the southwest corner of section twelve, said township; thence northerly to the northwest corner of section one, said township; thence easterly along the township line between townships thirty-one and thirty-two north to the northeast corner of section three, township thirty-one north, range six east, the place of beginning, are hereby reserved and withdrawn from settlement, occupancy, disposal, or sale, under the laws of the United

<p>Trespassing forbidden.</p>	<p>States, and said tracts are dedicated and set apart as a public park or pleasuring ground for the benefit and enjoyment of the people of the United States under the name and to be known and designated as the Lassen Volcanic National Park; and all persons who shall locate or settle upon or occupy the same, or any part thereof, except as hereinafter provided, shall be considered trespassers and be removed therefrom: <i>Provided</i>, That nothing herein contained shall affect any valid existing claim, location, or entry under the land laws of the United States or the rights of any such claimant, locator, or entryman to the full use and enjoyment of his land: <i>Provided further</i>, That rights of way for steam or electric railways, automobiles, or wagon roads may be acquired within said Lassen Volcanic National Park under filings or proceedings hereafter made or instituted under the laws applicable to the acquisition of such rights over or upon the national forest lands of the United States when the construction of such roads will not interfere with the objects of the national park, and that the United States Reclamation Service may enter upon and utilize for flowage or other purposes any area within said park which may be necessary for the development and maintenance of a Government reclamation project; that no lands located within the park boundaries now held in private, municipal, or State ownership shall be affected by or subject to the provisions of this Act: <i>And provided further</i>, That no lands within the limits of said park hereby created belonging to or claimed by any railroad or other corporation now having or claiming the right of indemnity selection by virtue of any law or contract whatsoever shall be used as a basis for indemnity selection in any State or Territory whatsoever for any loss sustained by reason of the creation of said park. (U.S.C., title 16, sec. 201.)</p>
<p><i>Provisos.</i> Valid claims not affected.</p>	
<p>Rights of way. (Repealed by 46 Stat. 1043. See p. 139.)</p>	
<p>Reclamation Service use.</p>	
<p>Present owner- ship not affected. Indemnity selections.</p>	
<p>Regulations of control, etc.</p>	<p>SEC. 2. That said park shall be under the exclusive control of the Secretary of the Interior, whose duty it shall be, as soon as practicable, to make and publish such rules and regulations not inconsistent with the laws of the United States as he may deem necessary or proper for the care, protection, management, and improvement of the same. Such regulations being primarily aimed at the freest use of the said park for recreation purposes by the public and for the preservation from injury or spoliation of all timber, mineral deposits, and natural curiosities or wonders within said park and their retention in their natural condition as far as practicable and for the preservation of the park in a state of nature so far as is consistent with the purposes of this Act. He shall provide against the wanton destruction of the fish and game found within said park and against their capture or destruction for purposes of merchandise or profit, and generally shall be authorized to take all such measures as</p>

shall be necessary to fully carry out the objects and purposes of this Act. Said Secretary may, in his discretion, execute leases to parcels of ground not exceeding ten acres in extent at any one place to any one person or persons or company for not to exceed twenty years when such ground is necessary for the erection of buildings for the accommodation of visitors and to parcels of ground not exceeding one acre in extent and for not to exceed twenty years to persons who have heretofore erected, or whom he may hereafter authorize to erect, summer homes or cottages. Such leases or privileges may be renewed or extended at the expiration of the terms thereof. No exclusive privilege, however, shall be granted within the park except upon the ground leased. The regulations governing the park shall include provisions for the use of automobiles therein and the reasonable grazing of stock. (U.S.C., title 16, sec. 202.)

Leases to accommodate visitors, etc. (This section so far as it relates to summer cottages repealed by 46 Stat. 1043. See p. 199.)

SEC. 3. That the Secretary of the Interior may also sell and permit the removal of such matured or dead or down timber as he may deem necessary or advisable for the protection or improvement of the park. (U.S.C., title 16, sec. 203.)

Timber disposal.

SEC. 4. That the Secretary of the Interior may exact such charges as he deems proper for leases and all other privileges granted hereunder. (U.S.C., title 16, sec. 203.)

Charges.

SEC. 5. That no appropriation for the maintenance, supervision, or improvement of said park in excess of \$5,000 annually shall be made unless the same shall have first been expressly authorized by law.

Limit on appropriations. Repealed by 42 Stat. 503. See p. 189 below.

An Act to designate certain lands in the Lassen Volcanic National Park, California, as wilderness. (86 Stat. 918)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, in accordance with section 3(c) of the Wilderness Act (78 Stat. 892; 16 U.S.C. 1132(c)), certain lands in the Lassen Volcanic National Park, which comprise about seventy-eight thousand nine hundred and eighty-two acres, and which are depicted on the map entitled "Recommended Wilderness, Lassen Volcanic National Park, California" numbered NP-LV-9013C and dated August 1972, are hereby designated as wilderness. The map and the description of the boundaries of such lands shall be on file and available for public inspection in the offices of the National Park Service, Department of the Interior.

SEC. 2. As soon as practicable after this Act takes effect, a map of the wilderness area and a description of its boundaries shall be filed with the Interior and Insular Affairs Committee of the United States Senate and House of Representatives, and such map and description shall have the same force and effect as if included in this Act: *Provided, however,* That correction of clerical and typographical errors in such legal description and map may be made.

SEC. 3. The wilderness area designated by this Act shall be known as the "Lassen Volcanic Wilderness" and shall be administered by the Secretary of the Interior in accordance with the provisions of the Wilderness Act governing areas designated by that Act as wilderness areas, except that any reference in such provisions to the effective date of the Wilderness Act shall be deemed to be a reference to the effective date of this Act, and any reference to the Secretary of Agriculture shall be deemed to be a reference to the Secretary of the Interior.

SEC. 4. Section 1 of the Act of August 9, 1916 (39 Stat. 443; 16 U.S.C. 201) is amended by deleting the words "that the United States Reclamation Service may enter upon and utilize for flowage or other purposes any area within said park which may be necessary for the development and maintenance of a Government reclamation project" and the semicolon appearing thereafter.

Approved October 19, 1972.

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As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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